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Technical Association Meets at Wausau, Wis.

Annual Fall Convention Draws An Unprecedented Number of Technical Men From All Sections of the Country and Canada—William H. Mason and Ogden Minton Presented With Gold Medals for Outstanding Contributions to the Technical Development of the Paper Industry

[FROM OUR SPECIAL CORRESPONDENT]

WAUSAU, Wis., October 1, 1928.—More than three hundred members of TAPPI and their friends met together here on September 25, 26 and 27 under the most favorable conditions that have ever marked a meeting of the Association. There is no doubt in the minds of any of the delegates present that Wausau—in the heart of Wisconsin—is an ideal meeting place for a meeting of this kind. Favored with the delightful crisp weather that precedes Indian Summer in the Land of Hiawatha, one could not help but enter wholeheartedly into the spirit of the occasion. As is customary, many members of TAPPI were on hand a day or two prior to the first day of the meeting to attend committee meetings, etc. Many of these were greeted by a friendly snow fall.

Local Committee

The local committee included Allen Abrams, Chairman, D. C. Everest, Norman S. Stone, J. P. Smith, Grover Keeth, C. A. Cajanus, M. M. Whitman, J. Richter Salveson, Warren Winn, W. H. Graebner, E. M. Bassler, Guy C. Howard, N. H. Foley, Roy H. Kelly, H. A. Skinner, C. M. Green and George H. Urban. The committee in charge of the ladies' program was led by Mrs. D. C. Everest.

The Meeting Places

Nearly all the members present were accommodated in the well equipped and new Hotel Wausau. The general headquarters, place of formal meetings and the Past Presidents' Banquet was the Elks' Club. Commitee meetings were held at the Wausau Club and the final banquet was held in the pavilion at Rothschild Park. The Wausau Daily Record-Herald provided an excellent publicity schedule of all the meetings.

TAPPI Committee Projects

The first general session under the chairmanship of R. G. Macdonald, secretary of the Technical Association of the Pulp and Paper Industry, considered in detail the work in progress of the seventeen committees of the Association. It has been the continued excellent work of these committees that has contributed much to its present high prestige and recognized international leadership in the technical interests of pulp and paper manufacture.

A report by Dr. C. J. West of the National Research Council outlined the work of the Committee on Abstracts and Bibliography, featuring the publication activities of TAPPI. A 240-page book dealing with paper making materials has been published and the manuscript of the new 1500 page Bibliography of Paper Making Since 1900 is now being printed. About 20,000 references are included covering publications of every country in the world. The routine work of the Committee includes the preparation of Abstracts of current literature and patents, photostating and loaning of current trade journals, etc.

Dr. T. C. Bentzen, chairman of the new Committee on Fine and Special Papers indicated that members of this committee are working on projects relating to safety, photographic and coated papers.

The Sulphate Pulp Committee, under the chairmanship of C. K. Textor, is continuing its studies of the following: (1) Investigation of the loss of soda from the recovery room stock and of means of avoiding these losses, (2) Determination of the paper making qualities of sulphate pulp, and (3) Investigation of sulphate pulp washing efficiency.

Training Committee Active

More than one hundred college students have been placed in summer employment by the Committee on Training for the Industry, as reported by Allen Abrams, chairman. About forty mills and forty colleges have cooperated. The Committee recommended that future work of this type be directed from the Secretary's office. It was also suggested that Area Advisers be maintained to assist the secretary in this work.

Corrosion and Waste Problems

Dr. H. L. Joachim, chairman, outlined in his committee report the important projects that are being undertaken by the Committee. A special survey is being made of the white water losses in paperboard and book paper mills, and excellent cooperation is being obtained. A survey is now under way to obtain data relative to corrosion in paper and pulp mills.

Other Committee Reports

With few exceptions, all of the seventeen TAPPI committees are actively engaged in studying problems of great interest to the industry. B. W. Scribner reported work on the following subjects: Resistance of Printed Papers, Microscopical Determinations, Resistance of Paper to Liquids and Chemical Methods of Paper Analysis. Twenty-six paper testing methods have been adopted by the Technical Association.

Other reports were received from H. A. Rothschild for the Physical Standards Committee; P. W. Codwise for the Committee on Roofing Felt; John F. Rhodes for the Heat, Light and Power Committee; George K. Spence for the Stuff Preparation Committee; J. E. Minor for the Committee on Materials Testing Methods; W. E. B. Baker for the Cellulose Committee; and W. E. Brawn for the Mechanical Pulp Committee. C. C. Heritage, chairman of the Sub-Committee on Paperboard, outlined some of the projects being contemplated by this committee.

Contributing Members

A change was recommended in the Articles of Organization whereby companies in industries related to pulp and paper manufacture may become members of the Technical Association of the Pulp and Paper Industry. These companies which manufacture equipment, chemicals, converted paper products, etc., will be known as Contributing Members. The annual dues for this class of members will be two hundred dollars. The Association is planning to have facilities available whereby Contributing Members may participate in the program of TAPPI and thereby contribute to the technical advancement of the industry.

Aviation Attracts Members

In a four-passenger cabin plane, piloted by A. M. Griffin, of the Alexander Airport, about 75 delegates enjoyed ten minute flights in the air above Wausau. For many this was the first airplane ride, but the experience has resulted in the creation of many new aviation enthusiasts.

H. C. Webber TAPPI Golf Champion

Against a formidable field of 25 dyed-in-the-wool golf players, H. C. Webber, of Munising, Michigan, succeeded in acquiring the trophy presented by the D. J. Murray Manufacturing Company, of Wausau. Runners-up in the golf tournament were C. W. Boyce, of APPA, New York, I. R. McCall, of Detroit, and Don Smith, of Wyandotte, Michigan.

Log Rolling and Pow Wows

The spirit of the "North Woods" was demonstrated in the final recreational program in Rothschild Park. The skill of river drivers in riding and doing stunts on floating and rolling logs was shown to be a still existing art in spite of the decrease in the number of lumber jacks who find occasion to "ride the rivers." By means of an ordinary fishing line and pole, it was shown that even a heavy and muscular swimmer could be landed on shore by simply reeling in the line. Braves and squaws from the reservation of Menominee tribe of Indians gathered together and observed several native rites. Finding it difficult to remove the scalp of W. G. MacNaughton for his evident amorous advances toward one of the squaws, it was decided that he be inducted into the tribe. This ceremony was performed in full form and resulted in making W. G. M. a full-fledged member of the tribe, eligible to all of its privileges and subject to all of its penalties. As a Menominee he will be known as He-gah-wa-see-he-ta-ka, or in English, "He who makes the trees talk."

N. F. Foley, Playwright

Following the final banquet at Rothschild Park, a one-act play was presented by the Rothschild Players, consisting of Maurice Diniston, Albert Falk, Walter Drew, George Urban and N. H. Foley, of the Marathon Paper Mills. The play, entitled, "The Morning After," related the details of a bad dream by the chief chemist of a paper mill. The histrionic ability of the actors was of an unusually high order. The play was written by N. H. Foley, of the Marathon Paper Mills.

Past President's Dinner

An event that will long remain in the memory of all present was the banquet held on Wednesday evening as part of the program of Past Presidents' Night. E. C. Tucker, acting as toastmaster, paid many compliments to Wausau for its warm hospitality. He then introduced several visitors from foreign lands, including Joseph and Sydney Hill, of Brittains, Ltd., Cheddleton, England; C. E. Beaumont, of Gravesend, England; M. P. Bhargava, of Dehra Dun, India, and Tore Nilsson, of Stockholm, Sweden.

Four former presidents of the association were present and briefly outlined some of the high points and interesting features of their respective administrations.

George E. Williamson, of the Strathmore Paper Company, gave an account of the post-war period and its effect on TAPPI, including the 1921 slump and 1922 recovery.

R. S. Hatch, president in 1919 and 1920, outlined the early work of preparing the text books on pulp and paper manufacture. It was during this period that the Association started the arrangements which led to the adoption of the PAPER TRADE JOURNAL as its medium of publication. A rapid increase in membership reflected the very high prosperity of the period.

W. G. MacNaughton was president for a short period, but exchanged positions with H. P. Carruth, who was vice president when he went to Spokane to work. Mr. MacNaughton became secretary of TAPPI in 1921 and devoted the major portion of his address to a consideration of the activities of the Association in developing methods for testing pulp and chemicals. He also paid a tribute to the engineers of the allied industries serving the paper industry for the highly ethical manner in which they have participated in the program of TAPPI. The growth of the Association as an international body and the fraternal character of its membership were also commented upon.

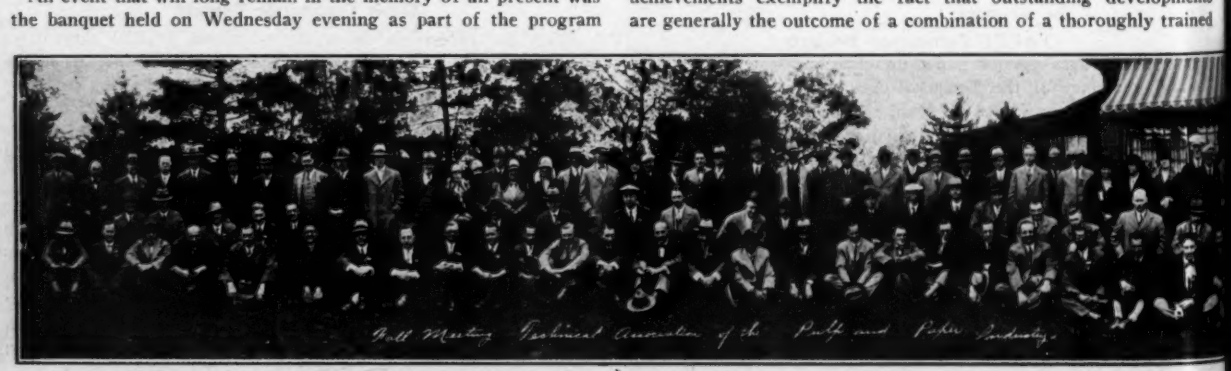
A resounding keynote was struck by Harry Fletcher, first president, in stating that the present high standing of TAPPI has been brought about by the attitude of the technical men of the industry who place "Service Above Self."

The Technical Association Medal

President Tucker announced the selection of two recipients for the TAPPI gold medal for outstanding contributions to the technical development of the industry—William H. Mason, of Laurel, Miss., and Ogden Minton, of Greenwich, Conn.

W. H. Mason was introduced by George E. Williamson, who told briefly of the achievements of Mr. Mason, saying that Mr. Mason went to Laurel, Miss., in 1920, where he developed a process for extracting naval stores from lumber during the course of manufacture. In studying methods of utilizing waste from lumber mills, his attention was turned to the possibility of exploding the wood so that it would be reduced to a fibrous condition. This was accomplished by subjecting the wood to high steam pressures and exhausting the mixture with explosive violence. This procedure formed the basis of the present Masonite process for making insulating board and artificial lumber.

The medal for Ogden Minton was presented to him by R. S. Kellogg, of the News Print Service Bureau. Mr. Kellogg in his address of presentation said in part, "Ogden Minton's career and achievements exemplify the fact that outstanding developments are generally the outcome of a combination of a thoroughly trained



PICTURE TAKEN AT THE ANNUAL FALL CONVENTION OF THE TECHNICAL ASSOCIATION

mind, a practical understanding of the goal to be reached, unlimited confidence in ultimate success and a tremendous amount of hard work. Born in Brooklyn in 1855, Mr. Minton was educated in Brooklyn Polytechnic Preparatory School and Cornell University. After a number of years in engineering and financial matters, Mr. Minton went into the engineering department of the American Writing Paper Company at Holyoke, Mass. It was here in 1914 that he conceived the methods of applying the principles that have resulted in the vacuum dryer which was patented in 1915. He gathered around him a small staff of technical men who subsequently devoted almost five years to thermodynamic and engineering studies in order to design and build full size vacuum dryers. The first dryers were installed for the Armstrong Cork Company at Lancaster, Pa., the Bakelite Company at Bloomfield, N. J., and Price Bros. & Co., Ltd., at Kenogami, P. Q. Two installations are to be soon completed in the Riverbend, Quebec, mill of Price Bros., Ltd., to run at 1,000 feet per minute, and a dryer to handle a sheet of paper 100 inches wide will be put in the mill of the Scott Paper Company at Chester, Pa. This machine will operate at 1,500 feet per minute."

Both Messrs. Mason and Minton responded to the introductions and gave some interesting sidelights relative to their inventions. A new and large use for Masonite has been brought about by the new "talking" motion pictures, Masonite having the property of absorbing the middle tones and thereby eliminating theater sound interference with the mechanically produced words and music. Mr. Minton expressed a personal feeling that the Technical Association medal meant more to him than any academic key or honors that he might have received.

D. C. Everest Suggests New Type of Technical Man

As a fitting climax to the banquet held in honor of the recipients of the Technical Association medal, Mr. Everest, president of the American Paper and Pulp Association, gave an interesting address which was in effect an essay on the pioneer work of technical men in the industry. Many of the difficulties facing the industry today were ascribed to the results of the technical development which has brought about increased production. He issued a challenge to the technical men to relieve the situation by studying pulp and paper from the standpoint of use requirement so that the market for paper products may be widened. The technical men should find new uses for paper and enter the new competition to perpetuate the industry and help solve its problems of distribution.

Forest Products Laboratory Symposium

As a result of meeting in Wisconsin, the Association was able to benefit to a great extent through cooperation with the Forest Products Laboratory. A group of papers were presented by the members of the laboratory staff giving detailed reports of the projects being carried out at Madison. These papers will appear in the Technical Section of the PAPER TRADE JOURNAL and cover the following subjects: The Microstructure of a Wood Pulp Fiber; The Increased Utilization of Hard Woods for Pulp and Paper; Semi-Chemical Pulping; The Semi-Sulphite Process; Pulping Eastern Hemlock by the Sulphite Process; The Bleaching of Wood Pulp; The Chemistry of the Alkaline Wood Pulp Processes.

On Friday and Saturday following the meeting at Wausau, a large number of TAPPI members visited the Laboratory at Madison to view at first hand a demonstration of the procedure followed in carrying out the projects described in the papers that were presented. It is hoped that as a result of the greater knowledge the industry now has concerning the laboratory and its work, that greater cooperation between the mills and the laboratory will be made possible.

The Symposium on Waste

Under the chairmanship of Dr. H. L. Joachim, of the Container Corporation of America, an interesting group of papers on the various phases of pulp and paper mill waste were presented. The study of white water and its utilization still plays an important part in the program of technical men. The papers which will be published in the PAPER TRADE JOURNAL include the following: Control of Stock Losses in the Paper Mill; White Water Loss Surveys; White Water Re-Use; Sanitary Analysis in the Pulp and Paper Industry.

The subject of corrosion is receiving more attention each year and should focus the attention of the entire industry to eliminate the heavy financial loss caused in this way. A paper prepared by G. R. Wyman, of Bird & Sons, on this subject caused considerable discussion. It is the plan of the TAPPI Waste Committee to study this problem in great detail.

Technical Control

The most enthusiastic discussion in the paper presentation program was incited by the data furnished in the papers relating to technical control in paperboard and pulp mills. That the paperboard industry is entering wholeheartedly into the program of technical control was made manifest by the interest shown in the paper presented by E. F. Whittington, of the Sutherland Paper Company, entitled "Technical Control in Paper Board Mills," and the progress report of H. L. Joachim indicating the work that the Waste Committee is doing in this great branch of the industry.

Sulphite mill control was discussed by C. E. Curran, of Madison, Wis. Phases of alkali pulp mill control were presented in papers by E. S. Hinman, C. K. Textor and C. G. Landes, while a further contribution to the subject of pulp strength testing was made by W. F. Moore, of New York, who described the use of the bronze rod mill for preparing pulp in the laboratory for testing.

Ways and means for obtaining mechanical assistance in mill control were described in a paper by R. V. Knapp on the Application of Meters and Instruments to the Pulp and Paper Industry, and by R. T. Kintzing in his paper entitled "Standard Control Apparatus in the Paper Industry."

Miscellaneous Papers

A group of papers on subjects of great interest to paper makers and giving the results of recent studies were presented. Chief among these was a report of the Manufacture of Pulp from Corn Stalks by E. F. Hulbert, chief engineer of the Cornstalk Products Company, Danville, Ill. This report has been published. Samples

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of the various products from cornstalks were exhibited and a controversial discussion enabled all present to view the project from a number of viewpoints.

A new paper machine ventilation system was described in a paper by R. Skagerberg, of St. Paul, Minn., entitled "Improving Paper Drying by Atmospheric Control." T. H. Ireland, of the Crane Company, gave many valuable suggestions in regard to the proper selection and installation of piping in paper mills. S. R. Olsen, of the Northwest Paper Company, gave a resume of his research findings concerning rosin sizing of paper. Mr. Olsen has been a research fellow of the Northwest Paper Company at the University of Minnesota.

Mill Visits

The mills and other industrial plants in the Wisconsin River Valley were enthusiastic hosts to the members of the Technical Association. Among those visited were the following: Marathon Paper Mills at Rothschild and its Pail and Carton Division at Wausau; Mosinee Paper Mills at Mosinee; Wausau Paper Mills at Brokaw; D. J. Murray Manufacturing Company at Wausau; Consolidated Water Power and Paper Company at Wisconsin Rapids; Nekoosa-Edwards Paper Company at Nekoosa and Port Edwards, and the Forest Products Laboratory at Madison. The visitors to Wisconsin Rapids were the guests of the tri-city mills at a luncheon at the local country club. Brief addresses were given by L. M. Alexander, S. W. Mead, E. P. Gleason and W. G. MacNaughton. Visits were also made to Nepco Lake, the Nekoosa-Edwards Forest Nursery, the State Fish Hatchery and the Tri-City Airport near Wisconsin Rapids.

Those Who Attended

Among the members and the guests who attended the meeting were the following:

Allen Abrams, Marathon Paper Mills Co., Rothschild, Wis.; Mrs. Allen Abrams; C. K. Andrews, Itasca Paper Co., Grand Rapids, Minn.; C. E. Apelgren, Bates Valve Bag Co., Chicago; L. M. Alexander, Nekoosa-Edwards Paper Co., Port Edwards, Wis.; K. R. Ackerman, Crane Co., Chicago.

E. Bache, Waldorf Paper Products, St. Paul, Minn.; R. E. Backstrom, Northwest Paper Company, Cloquet, Minn.; Mrs. R. E. Backstrom, Northwest Paper Company, Cloquet, Minn.; P. K. Baird, Forest Products Laboratory, Madison, Wis.; W. E. B. Baker, Stein Hall & Co., Inc., 285 Madison avenue, New York City; C. B. Barton, Jr., Michigan Paper Co., Plainwell, Mich.; E. M. Bassler, D. J. Murray Manufacturing Co., Wausau, Wis.; Mrs. E. M. Bassler, D. J. Murray Manufacturing Co., Wausau, Wis.; E. N. Bechard, Eastwood Wire Corp., Belleville, N. J.; J. P. Bellmer, Dells Paper & Pulp Co., Eau Claire, Wis.; T. C. Bentzen, Whiting Plover Paper Co., Stevens Point, Wis.; M. P. Bhargava, Forest Research Institute, Dehra Dun, India; G. W. Bicking, Bureau of Standards, Washington, D. C.; H. O. H. Bing, Paper & Textile Machinery Co., Sandusky, Ohio; M. W. Black, Inland Empire Paper Co., Millwood, Wash.; C. F. Black, Penberthy Injector Co., Detroit, Mich.; H. W. Blandin, Cornell Wood Products Co., Cornell, Wis.; R. M. Boehm, The Celotex Co., Chicago; R. L. Bosworth, Crocker-McElwain Co., Holyoke, Mass.; P. D. Bradley, Fort Howard Paper Co., Green Bay, Wis.; S. C. Brayton, Itasca Paper Co., Grand Rapids, Minn.; G. S. Brazeau, Appleton Machine Co., Appleton, Wis.; L. A. Breman, Waldorft Paper Products, St. Paul, Minn.; L. H. Breyfogle, Draper Bros. Co., Kalamazoo, Mich.; F. J. Bruce, Central Scientific Co., Chicago; C. A. Burrows, Munising Paper Co., Munising, Mich.; R. Backstrom, Mosinee Paper Mills Co., Mosinee, Wis.; C. M. Baker, A.P.P.A., Madison, Wis.; C. S. Beaumont, Sydden & Co., Ltd.; Folk Becker, Rhinelander Paper Co., Rhinelander, Wis.; N. H. Bergstrom, Bergstrom Paper Co., Neenah, Wis.; T. N. Bishop, Pittsburgh Piping & Equipment Co., Chicago; George Bonner, Falls Manufacturing Co., Oconto Falls, Wis.; L. M. Booth, Booth Chemical Co., Elizabeth, N. J.; C. W. Boyce, A.P.P.A., New York City; A. E. Broughton, Healy-Ruff Co., St. Paul, Minn.; Mrs. A. E. Broughton; S. B. Bugge, Tomahawk Kraft Paper Co., Tomahawk, Wis.; Mrs. S. B. Bugge; W. H. Burns, Valley Iron Works, Appleton, Wis.

J. L. Carey, 208 North Laramie avenue, Chicago; E. W. Cooper, Western Quebec Paper Mills, Ltd., St. Andrews, East Montreal, Canada; N. C. Cooper, Electro Bleaching Gas Co., New York City; R. E. Cooper, Abitibi Pulp & Paper Co., Espanole, Canada; John Cornell, The Paper Mill, New York City; C. E. Curran, Forest Products Laboratory, Madison, Wis.; C. A. Cajanus, Marathon Paper Mills Co., Rothschild, Wis.; J. A. Cameron, Cameron Machine Co., Brooklyn, N. Y.; Andreas Christensen, Rhinelander Paper Co., Rhinelander, Wis.; C. J. Christensen, Fibre Making Process Co., Chicago; A. E. Cofrin, Fort Howard Paper Co., Green Bay, Wis.; Frank Cota, Falls Manufacturing Co., Oconto Falls, Wis.

Margaret Davis, Marathon Paper Mills Co., Rothschild, Wis.; V. S. Denison, Paper & Textile Machinery Co., Sandusky, Ohio; F. M. Deutsch, Marathon Paper Mills Co., Rothschild, Wis.; R. H. Doughty, Forest Products Laboratory, Madison, Wis.; G. C. Dunn, Dunn Sulphite Paper Co., Port Huron, Mich.; C. L. Durkee, D. J. Murray Mfg. Co., Wausau, Wis.; Mrs. C. L. Durkee, D. J. Murray Mfg. Co., Wausau, Wis.; M. W. Davis, Anglo-Canadian Pulp & Paper Mills, Ltd., Quebec, P. Q.; P. M. Dinkins, Kalbfleisch Corp., New York City; L. M. Dotz, Escanaba Paper Co., Escanaba, Mich.; R. H. Doughty, Forest Products Laboratory, Madison, Wis.; H. A. DuBois, Kimberly Clark Co., Neenah, Wis.; J. R. Dufford, Patterson Parchment Paper Co., Passaic, N. J.; G. F. Durand, Port Huron Sulphite & Paper Co., Port Huron, Mich.

Sigge Ekman, Tomahawk Kraft Paper Company, Tomahawk, Wis.; Mrs. Sigge Ekman, Tomahawk Kraft Paper Company, Tomahawk, Wis.; Harris Elliott, Munising Paper Company, Munising, Mich.; R. L. Eminger, A. P. & P. M. Supts. Assn., 54 N. Main street, Miamisburg, Ohio; G. F. Enderlein, Mosinee Paper Mills Co., Mosinee, Wis.; Mrs. G. G. Enderlein, Mosinee Paper Mills Co., Mosinee, Wis.; Mrs. D. C. Everest, Marathon Paper Mills Co., Rothschild, Wis.; K. I. Ekholm, National Aniline & Chemical Co., New York City; L. H. Enslow, The Chlorine Institute, New York City; D. C. Everest, Marathon Paper Mills Co., Rothschild, Wis.

N. H. Foley, Marathon Paper Mills Co., Rothschild, Wis.; K. A. Forrest, Swenson Evaporator Co., Harvey, Ill.; A. H. French, Cherry River Paper Co., Richwood, W. Va.; G. J. Fink, National Aluminate Corp., Chicago, Ill.; James Foxgrover, Paper Makers Chem. Corp., Kalamazoo, Mich.; F. D. Frampton, Hooper Paper Co., Taylorville, Ill.

W. J. Garding, Watab Paper Co., Sartell, Minn.; A. T. Gardner, Combined Locks Paper Co., Combined Locks, Wis.; G. P. Genberg, Fraser Cos., Ltd., Edmundston, N. B.; Richard Glasner, Cornstalk Products Co., Danville, Ill.; O. J. Goeppinger, Waterbury Tool Co., Waterbury, Conn.; Mrs. O. J. Goeppinger, Waterbury Tool Co., Waterbury, Conn.; Winfred Graebner, Marathon Paper Mills Co., Rothschild, Wis.; C. M. Green, Mosinee Paper Mills Co., Mosinee, Wis.; F. Grunwand, Container Corp. of America, Chicago, Ill.; W. U. Gallagher, State Dept. of Health, Madison, Wis.; O. P. Gebhart, Oxford Miami Paper Co., West Carrolton, Ohio; E. P. Gleason, Nekoosa-Edwards Paper Co., Port Edwards, Wis.; H. W. Guettler, Fibre Making Processes, Inc.; Chicago, Ill.; Mrs. H. W. Guettler; W. H. Guidotti, Leavens Guidotti Co., Neenah, Wis.; Anton Gustin, Falls Manufacturing Co., Oconto Falls, Wis.; L. L. Griffiths, Jr., Electro Bleaching Gas Co., Niagara, N. Y.

J. P. Hagenauer, L. V. Estes, Inc., Ind. Engineers, Chicago Mrs. J. P. Hagenauer, L. V. Estes, Inc., Ind. Engineers, Chicago; Lois Hans, Container Corp. of America, Chicago; Thomas Hans, Container Corp. of America, Chicago; J. A. Hansen, Marathon Paper Mills Co., Menasha, Wis.; Earl Harding, Cornstalk Products Co., Danville, Ill.; R. S. Hatch, Oliver United Filters Corp., New York City; Jan Haugerod, Peshtigo Paper Co., Peshtigo

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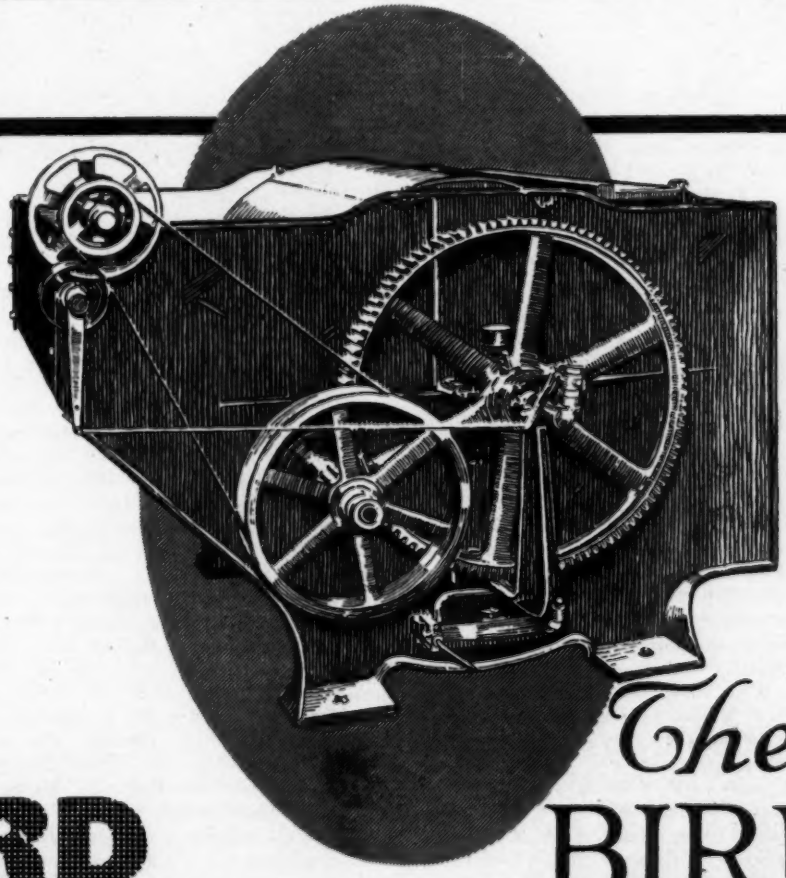

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Wis.; J. R. Hauser, Westinghouse Electric & Mfg. Co., Chicago; Herb Heilig, Vocational School, Appleton, Wis.; C. C. Heritage, Forest Products Laboratory, Madison, Wis.; Mrs. C. C. Heritage, Forest Products Laboratory, Madison, Wis.; G. K. Hill, Gilbert Paper Co., Menasha, Wis.; J. H. Hill, Brittains, Cheddleton, England; Sidney Hill, Brittains, Cheddleton, England; E. S. Hinman, P. H. Glatfelter Co., Spring Grove, Pa.; C. M. Holt, Penna. Salt Co., Menominee, Mich.; W. F. Hoffman, The Northwest Paper Co., Cloquet, Minn.; G. W. Hooker, Central Chemical Corp., Kokomo, Ind.; R. W. Hooker, Hooker Electrochemical Co., New York City; G. C. Howard, Marathon Paper Mills Co., Rothschild, Wis.; Mrs. G. C. Howard, Marathon Paper Mills Co., Rothschild, Wis.; E. F. Hulbert, Cornstalk Products Co., Danville, Ill.; George Huse, Munising Paper Co., Munising, Mich.

R. W. Haddock, Escanaba Pulp & Paper Co., Escanaba, Mich.; A. B. Hansen, Marinette & Menominee Paper Co., Marinette, Wis.; A. R. Harvey, Gardner-Harvey Co., Middletown, Ohio; Mrs. A. R. Harvey; L. W. Heard, Ontonagon Fibre Co., Ontonagon, Mich.; J. W. Hewitt, J. W. Hewitt Machine Co., Neenah, Wis.; R. P. Hill, Pulp Bleaching Corp., New York City; W. W. Hinnenthal, Marinette & Menominee Paper Co., Marinette, Wis.; A. S. Hunter, DuPont Rayon Co., Buffalo, N. Y.; O. W. Hughes, Manistique Lime Co., Manistique, Mich.

T. H. Ireland, Crane Co., New York City.

H. L. Joachim, Container Corp. of America, Manayunk, Pa.; F. H. Johnson, Jr., Cherry River Paper Co., Richwood, W. Va.; P. J. Johnson, Lion Company, New York City; P. E. Jones, Patten Paper Co., Appleton, Wis.; E. C. Jacobi, Standard Oil Company of Indiana, Wausau, Wis.; C. H. Jackson, Bayley Blower Co., Milwaukee, Wis.

H. E. Karberg, Lincoln Pulp & Paper Co., Ltd., Merritton, Ont., Canada; Grover Keeth, Marathon Paper Mills Co., Rothschild, Wis.; Mrs. Grover Keeth, Marathon Paper Mills Co., Rothschild, Wis.; Helen U. Keily, American Writing Paper Co., Inc., Holyoke, Mass.; R. S. Kellogg, News Print Service Bureau, 342 Madison avenue, New York City; R. H. Kelly, Marathon Paper Mills Co., Rothschild, Wis.; Mrs. R. H. Kelly; W. K. Kidder, Allied Paper Mills, Kalamazoo, Mich.; Mrs. W. K. Kidder; K. T. King, The DuPont Co., Chicago, Ill.; A. F. Klein, Hammermill Paper Co., Erie, Pa.; Edward Korman, Keller & Merz, New York City; A. G. Kerneau, Mosinee Paper Mills Co., Mosinee, Wis.; Paul Koenig, Continental Paper & Bag Co., New York City.

H. T. Latham, DuPont Co., Chicago; F. D. Libby, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.; C. E. Lindgren, Cornell Wood Products Co., Cornell, Wis.; J. S. Little, Western Electric Co., Hawthorne, Chicago; Ivar Lundbeck, Lee Paper Co., Vicksburg, Mich.; A. J. Luth, Nekoosa-Edwards Paper Co., Port Edwards, Wis.; O. L. LeRoux, Hennepin Paper Co., Little Falls, Minn.; Mrs. O. L. LeRoux.

R. G. Macdonald, TAPPI, 18 E. 41st street, New York City; W. W. Macklem, Black-Clawson Co., Hamilton, Ohio; W. G. MacNaughton, News Print Service Bureau, 342 Madison avenue, New York City; Hoke Martin, Mathieson Alkali Works, Inc., 727 Straus Bldg., Chicago; R. G. Maus, Allington & Curtis Manufacturing Co., Chicago; H. J. McCann, Dells Paper & Pulp Co., Eau Claire, Wis.; M. F. McCombs, Electro Bleaching Gas Co., New York City; D. McCready, Gilbert Paper Co., Menasha, Wis.; H. G. McDowell, Pusey & Jones Corp., Wilmington, Del.; Louise E. McGrath, Booth Chemical Co., Elizabeth, N. J.; C. I. McNair, Jr., The Northwest Paper Co., Cloquet, Minn.; A. W. Miller, Cornell Wood Products Co., Cornell, Wis.; K. H. Miller, Fort Howard Paper Co., Green Bay, Wis.; J. D. Miller, York Haven Paper Co., York Haven, Pa.; B. deB. Millidge, Howard Smith Paper Mills, Ltd., Beauharnois, P. Q.; J. O. Mills, Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.; Ogden Minton, Minton Vacuum Dryer Corp., Greenwich, Conn.; Carl Moe, Minnesota & Ontario Paper Co., International Falls, Minn.; W. F. Moore, R. F. D., Box 350, Clifton, N. J.; H. A. Morrison, Oliver Continuous Filter Co., 33 W. 42nd street, New York City; Mrs. H. A. Morrison; W. A. Munro, Munising Paper Co., Munising, Mich.; J. J. Mulcahey, Flambeau Paper Co., Park Falls, Wis.; D. C. Murchison, R. T. Vanderbilt Co., New York City.

W. H. Mason, Mason Fibre Co., Laurel, Miss.; F. D. McAllister, Mathieson Alkali Works, Detroit, Mich.; I. R. McCall, Detroit Graphite Co., Milwaukee, Wis.; Mrs. A. W. Miller, Cornell Wood Products Co., Cornell, Wis.; A. E. Montgomery, J. O. Ross Eng. Corp., Chicago; R. C. Morrison, Ontonagon, Mich.; C. E. Mueller, Paper Makers Chemical Corp., Kalamazoo, Mich.

C. N. Nilison, E. D. Jones & Sons, Pittsfield, Mass.; Mrs. C. N. Nilison; T. H. Nilsson, Bogalusa Paper Co., Bogalusa, La.; Robert Nivison, Hollingsworth & Whitney Co., Waterville, Me.; W. A. Nivling, Huron Milling Co., Boston, Mass.; C. H. Noble, A. E. Staley Mfg. Co., Kalamazoo, Mich.; Charles North, Green Bay Foundry & Machine Works, Green Bay, Wis.; R. A. North, Green Bay Foundry & Machine Works, Green Bay, Wis.; H. G. Noyes, Wisconsin Vocational Schools, Appleton, Wis.; C. H. Nystrom, Rhinelander Paper Co., Rhinelander, Wis.; J. J. Nylund, General Dyestuffs Corp., Chicago.

J. J. O'Connor, Mead Pulp & Paper Co., Chillicothe, Ohio; S. R. Olsen, Northwest Paper Co., Cloquet, Minn.; Mrs. S. R. Olsen.

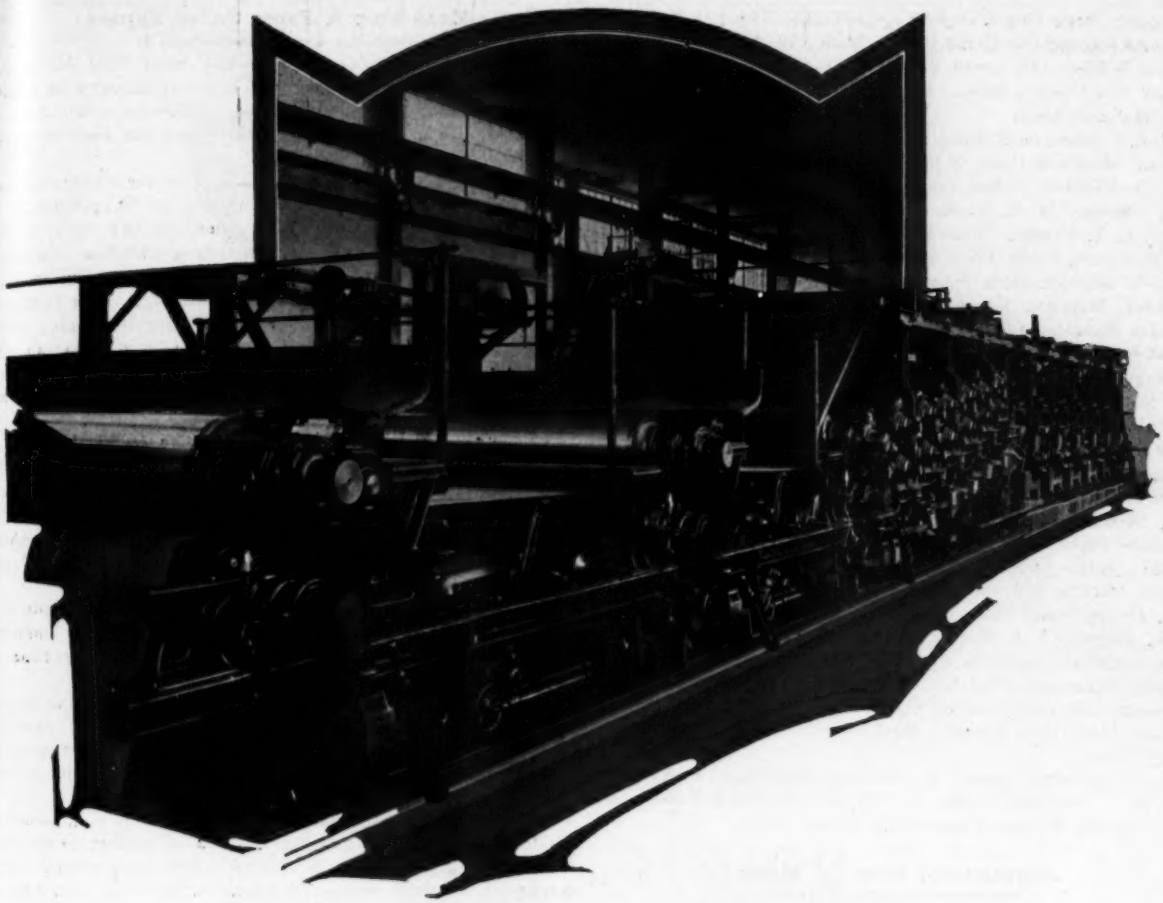
E. E. Payne, Record-Herald, Wausau, Wis.; C. E. Peterson, Champion Fibre Co., Canton, N. C.; A. W. Pesch, Falls Manufacturing Co., Oconto Falls, Wis.; D. F. Peterson, Bergstrom Paper Co., Neenah, Wis.; W. E. Phillips, Mathieson Alkali Works, Chicago; E. A. Preston, D. J. Murray Mfg. Co., Wausau, Wis.

R. J. Quinn, Mathieson Alkali Works, New York City.

R. M. Radsch, Thilmany Pulp & Paper Co., Kaukauna, Wis.; Mrs. R. M. Radsch; C. E. Raney, Container Corp. of America, Chicago; G. E. Reale, Hooker Electrochemical Co., New York City; Mrs. A. H. Reid, 524 Franklin street, Wausau, Wis.; G. J. Ritter, Forest Products Laboratory, Madison, Wis.; E. B. Roberts, Bemis Bros. Bag Co., Peoria, Ill.; R. B. Roe, Paul A. Sorg Paper Co., Middletown, Ohio; H. A. Rothschild, Kimberly Clark Corp., Neenah, Wis.

C. E. Sager, Hennepin Paper Co., Minneapolis, Minn.; J. Richter Salvesen, Marathon Paper Mills Co., Rothschild, Wis.; E. R. Schafer, Forest Products Laboratory, Madison, Wis.; B. W. Scribner, Bureau of Standards, Washington, D. C.; J. F. Shuman, Fort Wayne Corr. Paper Co., Hartford City, Ind.; H. A. Skinner, Marathon Paper Mills Co., Rothschild, Wis.; Mrs. H. A. Skinner; A. E. Sjoman, Filer Fibre Co., Manistee, Mich.; Mrs. A. E. Sjomon; Don Smith, Penna. Salt Mfg. Co., Wyandotte, Mich.; J. P. Smith, Marathon Paper Mills Co., Rothschild, Wis.; H. B. Somerset, Forest Products Laboratory, Madison, Wis.; G. H. Spencer, Minton Vacuum Dryer Corp., Greenwich, Conn.; A. L. Spafford, Northwest Paper Co., Cloquet, Minn.; J. A. Staidl, Thilmany Pulp & Paper Co., Kaukauna, Wis.; R. H. Stevens, Bogalusa Paper Co., Inc., Bogalusa, La.; R. R. Stoltz, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; N. S. Stone, Mosinee Paper Mills Co., Mosinee, Wis.; Mrs. N. S. Stone; E. P. Strong, Munising Paper Co., Munising, Mich.; J. P. Strasser, Stein-Hall Mfg. Co., Chicago; W. J. Sullivan, Grandfather Falls Co., Merrill, Wis.; Mrs. W. J. Sullivan; B. S. Summers, 527 Railway Exchange Bldg., Chicago; Mrs. B. S. Summers; H. M. Sutton, Harmon Paper Co., Brownville, N. Y.; P. J. Sievert, Marinette & Menominee Paper Co., Marinette, Wis.; R. Skagerberg, 2291 Doswell avenue, St. Paul, Minn.; J. N. Spawn, Champion Fibre Co., Canton, N. C.; Otis Spencer, Jr., Locomotive Terminal Improvement Co., Chicago; John Stevens, Ontonagon Fibre Co., Ontonagon, Mich.; J. W. Stevens, The Northwest Paper Co., Cloquet, Minn.; L. T. Summers, Port Huron Sulphite & Paper Co., Port Huron, Mich.; W. H. Swanson, Kimberly Clark Co., Neenah, Wis.

C. R. Tait, Hammermill Paper Co., Erie, Pa.; W. H. Theroux, The Paper & Textile Machinery Co., Sandusky, Ohio; K. M. Thorsen, Central Paper Co., Muskegon, Mich.; Mrs. K. M. Thorsen; S. E. Tomczak, Flambeau Paper Co., Park Falls, Wis.; John



Greater Tonnage Without Sacrificing Quality

MAINTAIN quality at high speed with a modern Downingtown Board Machine.

The illustration shows the Main Press Part of one of the latest Downingtown Board Machines. The main bearings are self aligning and water cooled, while the top rolls are easily raised by ratchets.

High speed production is assured even on high test board, while ease of operation, low power requirements, freedom from breakdowns and long service life are constant factors in every Downingtown Machine whether Cylinder or Fourdrinier. Get our bid.

Our Products Meet Our Promises

DOWNINGTOWN Manufacturing Company Downingtown, Pa., U. S. A.

CAN. REP. FOR KILBERRY SUCTION ROLLS CHAS. WALMSLEY & CO. CANADA LTD. MONTREAL, QUE.

Traquair, Mead Pulp & Paper Co., Chillicothe, Ohio; P. Y. Tumy, General Electric Co., Grand Rapids, Mich.; W. J. Taylor, Hoberg Paper & Fibre Co., Green Bay, Wis.; C. K. Textor, Northwest Paper Co., Cloquet, Minn.; E. C. Tucker, Chemical Paper Mfg. Co., Holyoke, Mass.

E. C. Uebrick, Dells Paper & Pulp Co., Eau Claire, Wis.; G. H. Urban, Marathon Paper Mills Co., Rothschild, Wis.

L. A. VanHola, Bristol Co., Chicago; R. W. VanKirk, DuPont Co., Chicago; H. L. Voss, Mosinee Paper Mills Co., Mosinee, Wis.; L. T. Verdon, Paper Mills Supply Co., Kalamazoo, Mich.; H. K. Vinton, PAPER TRADE JOURNAL, New York City.

L. S. Warrick, State Board of Health, Madison, Wis.; H. C. Webber, Munising Paper Co., Munising, Mich.; W. J. Weed, Electro Bleaching Gas Co., New York City; S. D. Wells, Paper Mills Lab., Inc., Quincy, Ill.; H. E. Weston, The Paper Industry, Chicago, Ill.; C. R. Whipple, Beloit Iron Works, Beloit, Wis.; M. M. Whitman, Marathon Paper Mills Co., Rothschild, Wis.; E. F. Whittington, Standard Paper Co., Kalamazoo, Mich.; Mrs. E. F. Whittington; G. R. Wholean, Strathmore Paper Co., Mittineague, Mass.; A. Wiberg, Gilbert Paper Co., Menasha, Wis.; E. R. Williams, Neenah Paper Co., Neenah, Wis.; G. E. Williamson, Strathmore Paper Co., Mittineague, Mass.; W. R. Winn, Mosinee Paper Mills Co., Mosinee, Wis.; C. F. Wolcott, Philadelphia Quartz Co., Philadelphia, Pa.; Philip de Wolf, Joubert & Goslin Machine & Foundry Co., New York City; E. W. Woodhall, Dixon Board Mills, Cathage, Ind.; Mrs. E. W. Woodhall; C. L. Wagner, J. L. Ross Engineering Corp., New York City; Eric Wahlfoss, Industrial Processes, Ltd., Sartell, Minn.; A. W. Waern, Ontonagon Fibre Co., Ontonagon, Mich.; Edward Weber, National Aniline & Chemical Co., Chicago; R. A. Wilkins, Bird & Sons, Inc., East Walpole, Mass.; E. H. Williams, Williams-Gray, Chicago.

S. C. Zabriskie, Arthur S. Zabriskie, Inc., New York City; Mrs. S. C. Zabriskie, Arthur S. Zabriskie, Inc., New York City; S. L. Zellers, Wausau Paper Mills, Brokaw, Wis.

International Pulp Co. Meets

[FROM OUR REGULAR CORRESPONDENT]

GOUVERNEUR, N. Y., October 1, 1928.—The board of directors of the International Pulp Company held a business meeting at the local offices of the company here Friday. All of the directors of the firm were in attendance as well as J. J. Wallace, general manager of the local plant. A discussion of market conditions and the general business outlook consumed much of the meeting time.

After the business session the directors were taken on a tour of inspection of the company's mills and talc mines in the town of Fowler. General satisfaction and approval was expressed of the excellent condition of the properties. Officials of the company are well pleased with the future business outlook.

Among those in attendance at the meeting were Michael Doyle, of Rochester, president, Stephen J. McCrimlisk, of New York city secretary, W. H. Stillhammer, of New York, assistant treasurer, William C. Geer, Frank P. McCarthy, and William D. Mahoney, all of Troy, and Kendall P. Castle, of Rochester.

Cy Norton To Speak at Philadelphia

Cy Norton, advertising manager of Strathmore Paper Company, Mittineague, Mass., will read a paper at the eleventh annual convention of the Direct Mail Advertising Association to be held in Philadelphia October 17-19, during "Advertising Week."

Mr. Norton is secretary of the Paper Makers' Advertising Club and a member of the Springfield Publicity Club and the Association of National Advertisers.

He recently spoke before the Albany Advertising Club, the Hartford Advertising Club and the Springfield Printing Craftsmen.

"How Strathmore Uses Nine Varieties of Direct Mail—And Makes Them All Pay" will be the topic of his talk in which he will show how Strathmore tests each form of direct mail.

Mead Pulp & Paper Co. to Expand

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 2, 1928.—The Mead Pulp and Paper Company of this city is preparing for an expansion of its manufacturing facilities at the plants in Chillicothe, Ohio, and at Kingsport, Tenn. The Company also owns the Peerless paper mills in Dayton.

It is planned to build several additions to the Chillicothe and Kingsport mills and to add considerably to the equipment in each place. A meeting has been called for this week of the stockholders at which the matter of issuing additional stock and disposing of it to raise funds for the improvements, which, it is estimated, will add fifty per cent to the earnings of the company.

Additional capital for this purpose and for the future needs of the company will be provided by the sale of common and special preferred stock, providing the directors of the company when the meet here takes the proposed action in increasing the stock issues.

The expansion contemplated at Chillicothe will add about 25 per cent to the equipment at that place and will increase the working force approximately 200 men and women, it is stated. This will mean an additional payroll distribution annually of more than $250,000. At the present time the company employs about 700 persons at Chillicothe and has a payroll of $1,000,000 annually.

The plans include the addition of another paper machine and an additional coating machine, together with such new buildings and equipment as may be necessary to balance the operation at Chillicothe.

At Kingsport, Tenn., where the increase will be smaller in extent the company plans the erection of a combined finishing room and paper storage building. No additions or changes are contemplated at the present time at the company's mill in this city.

The company is now building an experimental pulp plant at Chillicothe where it is carrying on tests of making paper pulp from wheat straws, and is making other experiments. The conversion of wheat straws into paper, while it has been accomplished on a small scale heretofore, has never been a commercially successful venture and the experiments now are being made along this line are expected to result in more successful work.

The Mead Pulp and Paper Company has made some extensive expansions during the past ten years. It is stated that net earnings for the past six months, or rather the first half of this year, have amounted to approximately $500,000, which is considerably more than the net earnings for the corresponding period of 1927 and indicates an unusual degree of activity throughout the country in lines where the company's products and products of like nature are used.

It is proposed at this week's meeting of the stockholders and directors to provide for increasing the authorized 7 per cent cumulative special preferred stock from 30,000 to 50,000 shares, and increasing the common stock from 100,000 to 500,000 shares.

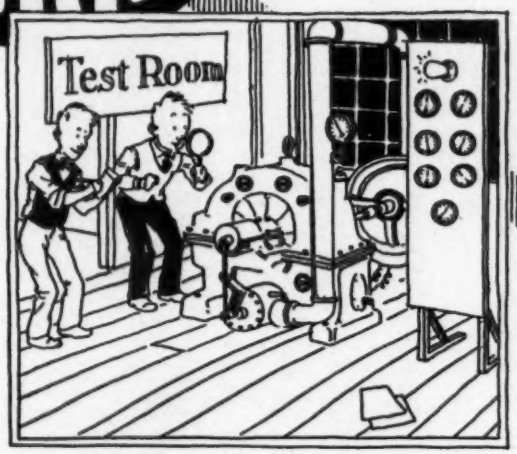
It is the present intention of the company to sell at this time for construction requirements, 50,000 shares of the additional common stock and in due course 15,000 shares of the special preferred stock, the proceeds of which will be largely used to retire the mortgage debt of the subsidiary companies, so that all of the properties of the companies will be free from bonds which now have a prior charge against the assets and earnings.

The shares of special preferred stock will first be offered for subscription to the present special preferred stockholders, it is understood.

German Paper Production Decreases

WASHINGTON, D. C., September 26, 1928.—Paper manufacture in Germany during the second quarter of this year amounted to 509,273 metric tons as against 521,931 tons during the preceding quarters, according to Trade Commissioner William T. Daugherty.

TERRY



Terry Prepares a *New* Catalog

A new bulletin which describes the Terry wheel turbine* has just been issued.

It is a simplified, condensed text book on steam turbine design, construction and application. It contains information which will materially assist you in solving your power problems.

A request on your letterhead will bring you a copy. Ask for Catalogue S-849.

*The Terry wheel is a specially designed power producing rotor manufactured from a solid steel forging without inserted buckets—"Terry design is the one-piece kind."

T-1002

The Terry Steam Turbine Company

TERRY SQUARE, HARTFORD, CT.

Steam Turbines + Gears + Shaft Couplings

Pulpwood Supply Assured for Wisconsin Mills

Nekoosa-Edwards Co. Doing Extensive Reforestation Work—Half Million Trees Being Planted Under Direction of Forester Kilp—Tomahawk Paper Co. Using 20,000 Acres of Land For Tree Growing—This Year's Planting Will Amount to 100,000 Trees

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 1, 1928—Half a million trees planted by one paper company and 100,000 planted by another indicate the rapidity with which Wisconsin's pulpwood supply is being assured for the future as against the alarming situation a few years ago when the forests were due for extinction.

The Nekoosa-Edwards Paper Company is doing the most extensive reforestation work. A large crew of men is working under the direction of the company's forester, F. G. Kilp, and is planting 500,000 trees near Nepco Lake. The trees are taken from a nursery which contains 175 beds of seedlings.

About 1,000 acres will be planted and most of the trees will be jack pine. It is expected that they will mature in forty years and be available for the company's mills at Port Edwards and Nekoosa, Wis. The nursery also contains white pine, Norway pine, white spruce and Norway spruce. Some Scotch pine also will be grown for experimental purposes.

When the state passed a consistent forestry law about two years ago so that timber lands were not bearing an unreasonable load of taxation, the Nekoosa-Edwards company set out a large tract of trees as its first step in reforestation, and the example has been followed by others. Next year another large quantity of trees will be transplanted from the nursery and it is estimated that the company will have 4,000,000 trees under cultivation at that time. A great many tracts of land have been acquired that are useless for agriculture but suitable for trees. Tracts in Ashland and Sawyer counties have also been taken up for this purpose. Fire towers have been ordered so that proper protection can be provided.

The other leading advocate of reforestation is the Tomahawk Kraft Paper Company, of Tomahawk, Wis. This company has 20,000 acres of land which will be used solely for tree growing. This year's planting will amount to 100,000 trees, mostly jack pine. A crew of fourteen men is working under the direction of C. G. McLaren, forester for the company.

Menasha Safety School Program

Speakers have been announced for several of the sessions of the safety classes which are to be conducted for paper mill executives and employes by the vocational school of Menasha, Wis. The first meeting will be held on October 14, when L. Sagemuller, manager of the Meteor Oil Company, of Milwaukee, Wis., is to discuss "Safety and Your Responsibility." Other speakers at later sessions will be: R. G. Knutson, of the Wisconsin Industrial Commission, Madison, Wis., speaking on "The Success of Safety"; Harry K. Rogers, of the Western Actuarial Bureau, Chicago, subject, "Fire"; Dr. Thompson, chief surgeon, Chicago and Northwestern Railway, subject, "Health and Production"; F. A. Lauerman, of the Interstate Iron and Steel Company, Chicago, "Safety and Efficiency"; C. B. Boulet, of the Wisconsin Public Service Corporation, Milwaukee, "Breaking in the New Man." John Callahan, state superintendent of schools, is to speak at a special dinner program on December 3.

News of the Industry

George W. Mead, president of the Consolidated Water Power and Paper Company, of Wisconsin Rapids, Wis., has been named one of the presidential electors of the Republican party in this state. Mr. Mead recently completed a campaign for United States senator but was defeated. Members of the Wisconsin Daily Newspaper League were entertained for a day recently by Mr. Mead. They were escorted through the Consolidated's news print mill and were given a dinner. The uses and manufacture of news print were discussed during the gathering.

Tours to paper mills will be a part of the short course for woodsmen which is to be conducted at the University of Wisconsin, Madison, Wis., from November 12 to 21. The course is for experienced woodsmen and probably will include several who are engaged in this work in the paper industry. Visits will also be made to the United States Forest Products Laboratory at Madison, and the Lake States Experimental Station, at St. Paul, Minn.

Willard Taylor, chemist at the Northern Paper Mills, Green Bay, Wis., and Miss Helen Hoffman, of Kaukauna, Wis., were married last week. The marriage of Richard L. Evans, of Milwaukee, Wis., and Miss Ethel Blackford, of Lewiston, Mont., also is anounced. Mr. Evans is associated with the Wisconsin Paper and Products Company, Milwaukee, Wis.

The Wausau Sulphate Fibre Company, Mosinee, Wis., tendered a banquet recently to Michael H. Ward, who is retiring after completing 67 years of service in the paper industry. He was beater engineer. Norman Stone acted as toastmaster, and talks were given by A. L. Kreutzer and F. P. Stone, Sr. Employees who had been with the company for more than fifteen years were guests.

Increased production has been going on at the Kimberly-Clark Corporation's mill at Niagara Falls, N. Y., since another crepe-wadding machine was placed in operation. This is the fourth machine installed in the plant and is capable of turning out crepe-wadding at the rate of 600 feet a minute.

Checks of five dollars each have been paid to 139 employees of the Atlas mill of the Kimberly-Clark Corporation at Appleton, Wis., as the result of achieving a perfect record in safety. The company thus rewards the employees where perfect records are maintained and has made many payments of this kind during the last few years.

Jerry Elson, former machine tender and tour boss of the Marinette and Menominee Paper Company's mills at Marinette, Wis., and Menominee, Mich., has been made assistant superintendent of the Continental Paper and Bag Corporation mill, at Rumford, Me. He was transferred to Rumford recently.

A Mutual Benefit Society has been organized and incorporated by the Kimberly-Clark Corporation's subsidiary in Canada, the Spruce Falls Pulp and Paper Company, Ltd. The organization has 545 employees enrolled and has an excellent plan of payments for illness or death. S. R. Stilp is president, E. S. Noble, vice president, and F. A. Robinson, secretary. Employees' representatives are F. M. Helston, H. N. Baker, G. Ince, C. L. Russell and H. D. Hyman.

Federal Paper & Board Co. To Build

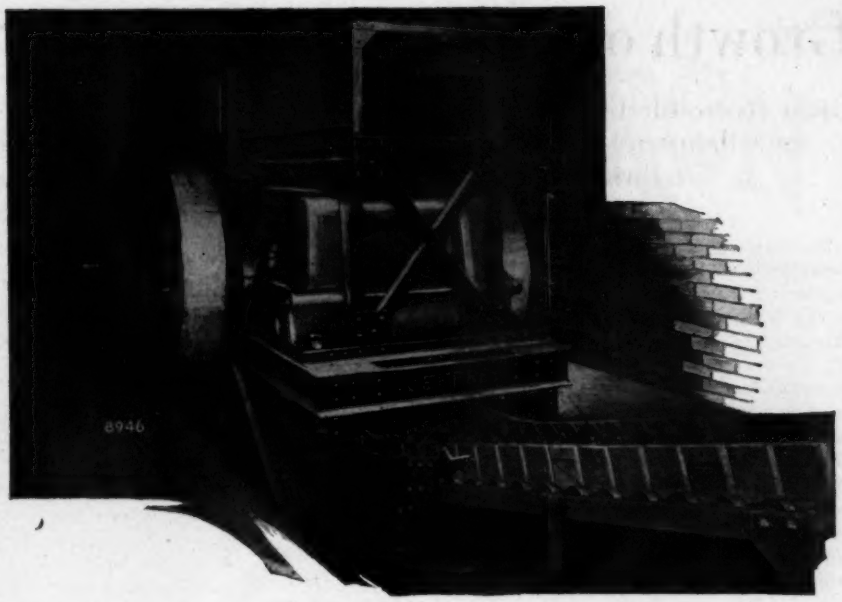
[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., September 28, 1928.—Following a recent announcement of the incorporation of the Federal Paper and Board Company in Portland, Ore., Max E. Goldberg has stated that his company will have a mill in operation by the first of the year to manufacture new paper and paper board from waste paper. About 125 men will be employed. Isadore Goldberg is secretary.

"We have developed a process for using waste and used paper in making new paper and paper box boards which will enable us to produce 40 tons of paper daily," Mr. Goldberg stated. The site for the factory is still under consideration and will be decided soon.

Jeffrey Chains for Every Service

Jeffrey Steel Thimble Roller Chain for drives. Longer pitches for elevating and conveying.



Reduces Coal to Stoker Size in One Operation

Long coal-gripping teeth on this Jeffrey Single Roll Crusher take hold of the large lumps in the hopper and drag them down to the breaker plate while the smaller teeth do the sizing.

The result is uniform stoker size coal in one operation.

Features that have made more than 4,000 satisfied users of the Jeffrey Single Roll Crusher include:

A breaker plate that can be easily adjusted to provide a large range of sizes, renewable wearing parts throughout and a breaking pin safety device which protects the machine against hard foreign material.

Built in five sizes with capacities ranging from 25 tons to 1100 per hour.

Jeffrey installs complete coal and ash handling equipments for power plants.

The Jeffrey Manufacturing Company

931-99 North Fourth St., Columbus, Ohio

New York, Buffalo, Rochester, N. Y., Philadelphia, Pittsburgh, Scranton, Pa., Boston, Cincinnati, Utica, Cleveland, Charleston, W. Va., Chicago, Detroit, Milwaukee, St. Louis, Denver, Salt Lake City, Houston, Birmingham, Atlanta, Montreal

51 YEARS OF SERVICE TO INDUSTRY

JEFFREY

MATERIAL HANDLING EQUIPMENT

Jeffrey Products

Elevators
Conveyors
Portable Loaders
Coal and Ashes Handling Equipment
Skip Hoists
Chains and Attachments
Sprocket Wheels—Gears
Crushers—Pulverizers
Sand and Gravel Handling, Washing and Screening Equipment
Locomotives
Coal Mine Equipment
Tipple Equipment
Ventilation Fans

Growth of International's Canadian Operations

Giant Hydro-Electric Plants and Pulp and Paper Mills Assure Prominent Position in Dominion's Industries—Success of Organization Attributed to Long View and Remarkable Enterprise of Its Administrators—Enormous Timber Lands Controlled

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 1, 1928.—That the International Paper Company is no longer an American company, but what its name implies, an international organization, is the theme of an editorial in the *Montreal Herald* dealing with the remarkable growth of that company's operations in Canada. "In this connection," it says, "it is noteworthy that each of its Canadian subsidiaries has directorates largely composed of Canadians, that Canadian investors are heavily interested in the company's securities, that its activities give employment to an army of Canadians in the production of manufactured commodities for export, and that to the large vision and remarkable enterprise of its administrators is due in no small measure the remarkable progress made in recent years by Canada in general and the Province of Quebec in particular."

The editorial proceeds: "Originally concentrating its energies largely in the New England states and the Province of Quebec, it has of late gone farther afield, and its plants now not only occupy a predominant position in the districts named, but extend to New Brunswick, Nova Scotia, Ontario, Newfoundland, Pennsylvania, Ohio, Mississippi, Arkansas and Wisconsin. It has 55 pulp and paper mills, one coal mine (the Minto in New Brunswick), 21 hydro-electric plants and 12 undeveloped power sites. Its present development of hydro-electric current is 1,524,600 h.p., and it has capacity for increasing this to the huge total of 3,000,000 h.p. Its mills will have a capacity when running full of upwards of 4,500 tons of pulp and paper per day, running the whole gamut of paper products, and in addition there is a large output of lumber.

"Among the mills is one at Three Rivers with a capacity of 700 tons of news print per day. This is enough to cover more than two acres of ground per minute, or to make every day a sheet of paper eight feet wide stretching from the Atlantic to the Pacific.

"The timber lands under control of the company are of startling extent. They cover in the United States, Canada and Newfoundland, over 29,000 square miles, an area exceeding the combined areas of New Hampshire, Vermont, Massachusetts, and Rhode Island."

Today the delivery of power over the 220,000 volt transmission line between Paugan Falls, Que., and Toronto for consumption by the Ontario Hydro-Electric Commission in western Ontario was formally inaugurated. The power is developed by the Gatineau Power Company, a subsidiary of the International Paper Company. The transmission line is the first 220,000-volt line in Canada, and there is no other similar line operating with a higher voltage in the world. It was entirely designed and constructed by Canadians.

The Gatineau Company is at present offering to the public $7,500,000 of 6 per cent debentures to reimburse itself for expenditures in connection with the acquisition of the Bryson and Chaudiere plants and other corporate expenditures. The company is now finishing, within cost and time estimates, the construction of three hydro-electric developments of an installed capacity of 419,500 h.p., all situated on the Gatineau River, within 35 miles of Ottawa. Other powers held by the company and located on the Ottawa River and its tributaries, bring its total capacity, now operating or nearing completion, up to 544,330 h.p., of which 463,300 h.p. is already in operation. The power plants comprising its system are so designed that this capacity, 544,300 h.p., may be increased to 697,000 h.p., whenever conditions in the power market justify. The total potential capacity is in excess of 1,100,000 h.p.

Contracts for the sale of all the primary power to be presently generated at the plants have already been executed with the Hydro-Electric Commission of Ontario, the city of Ottawa, the Canadian International Paper Company, the Canada Cement Company, the E. B. Eddy Company, and the Gatineau Electric Light Company.

Paper Mills in Liquidation

The Western Quebec Paper Mills, of St. Andrews East, Que., have gone into liquidation, and the concern is being wound up on petition of the creditors. It is understood that the claims total some $25,200, of which $16,000 is in notes held by the creditors, and the balance is a debt owing on power delivered. Interest has been paid to date on the bonded indebtedness of $225,000 and on debentures amounting to $125,000. The 10,000 shares of no par value common stock now outstanding are distributed among only seventeen shareholders.

The failure is attributed to high operating costs and heavy overhead charges, and it is said the losses during the past two years have been around $120,000. The company was originally formed to manufacture tissues, manifold and onion skin papers. Recently the output was concentrated on the onion skin papers, excellent contracts for which had been secured.

Officers of the company are as follows: R. W. Barclay, president, William Currie, vice-president, C. De Wolf Reid, general manager.

New Mills Doing Well

Among the new mills reported to be highly successful are those of the Lake St. John Power and Paper Company, in the Lake St. John district, and the St. Lawrence Paper Mills Company at Three Rivers.

The former company, whose plant only began operation at the beginning of this year, is turning out as much as 235 tons of news print per day, although the rated capacity is only 220 tons. The entire output has been sold for a number of years to the Hearst publishing interests in the United States.

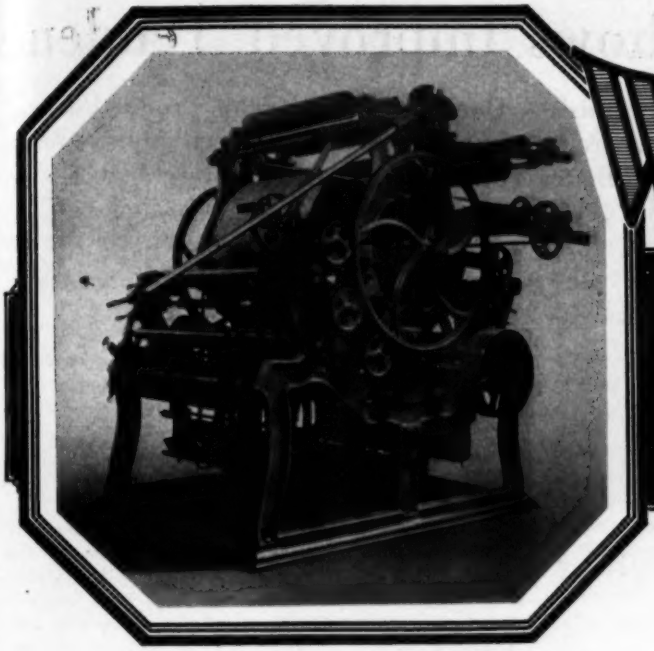
As to the St. Lawrence Company, the directors have issued a letter to shareholders in which the following statements are made:

"From the date of the formation of your company May 8, 1928, to August 31, 1928, a period of slightly less than four months, earnings before income taxes and dividends amounted to $296,463.29, which approximates expectations of the management at the time of its formation. You will note that earnings, even during this period of seasonal decline in prices, were at a rate substantially in excess of dividend requirements on the outstanding preferred stock.

"The management of your company regards the outlook for the Canadian news print industry as favorable, even though the present period is unsatisfactory due to declining prices resulting from over capacity in the industry and keen competition for business.

"The entire productive capacity of your company's present plant is under contract for 1928. For 1929, 88 per cent of its capacity is under contract and contracts for the balance have been promised by publishers with whom your company has been doing business. Your company's relations with its customers continue on most friendly basis.

"The construction work in connection with the installation of two additional news print machines at the mill at Three Rivers, Quebec, is progressing according to schedule, and it is expected that these machines will be ready for operation by January 1, 1929."



WALDRON

6 Color Surface Printer

Paper Rolls (Calender and Embossing)
Coating Machines
Embossing Machines
Winders and Slitters
Gumming, Waxing and Saturating Equipment
Crepeing Machines
Conditioning Machines

For Light Weight Papers

Waldron Surface Printers, run in tandem with a Festooning machine and in conjunction with a Rewinder, are Standard equipment for producing the clever decorative effects on light weight papers. For the box paper linings, general utility wraps and trims, from one to six colors is the popular range. In some fields these printers are made for 12 and up to 16 colors.

Accurate registration is assured by assembly of different blocks and color units around a single large impression cylinder with diameter the same as the pitch diameter of the master gear. Sieve cloth color distribution with doctor blade and adjustable tension insure even inking.

Write to Our Engineering Department for Any Information Desired Concerning Surface Printing of Light Weight Papers. No Obligation.

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JOHN WALDRON CORPORATION

MAIN OFFICE AND WORKS, NEW BRUNSWICK, N. J.

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PORTLAND, ORE.

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MONTREAL

Chicago Market Shows Improved Tendency

Outlook for News Print Industry More Promising, Due to Curtailment of Production and Increasing Demand—Orders for Various Grades of Fine Paper Coming in Rapidly—Wrapping Paper Moving in Better Volume—Paper Board More Active

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 1, 1928.—Business is beginning to get brisk in Chicago paper circles and visitors at the Fall Meeting of the National Paper Trade Association will find a fairly optimistic group of brother merchants getting their share of fall business.

The news print market is in an improved condition over that of a month ago due to the slackening up of production to a slight degree. The presidential campaign assists in taking up a quantity of news print, while the holiday season is not far off. The market outlook is thus reported more promising. The fine paper situation, long the least optimistic of all grades in this market, is beginning to improve considerably and reports have it that this particular market is in very good shape with orders coming in more rapidly than they have for some time. From now on to the holidays fine paper merchants are very hopeful. Book paper is in good shape with prices firm and the market reported steady. Wrapping paper improves as the season advances. Board continues good in all grades.

Paper Men Enjoy Golf Outing

Frank Peck, of the D. F. Peck Company, together with the Crystal Tissue Company, of Middletown, Ohio, were hosts of members of the Chicago Paper Association and their friends at a golf outing Wednesday, September 26, at the Medinah Country Club. Fifty-two golfers were out to enjoy the hospitality of Mr. Peck and the Crystal Tissue Company. They all did justice to an excellent noon luncheon and followed it up with all kinds of golf, good, bad and indifferent. Mortie Inlander, of Inlander Brothers, won the feature prize of the day, a silver loving cup given by the Crystal Tissue Company. No other prizes were given and only glory and side bets were left to be fought for. Only one member of a firm was eligible to play for the cup which is to be contested for annually at the Chicago Paper Association yearly outings. It will be necessary for the winner to win three times in succession before he gets permanent possession of the trophy.

Chicago Paper Association Plans

The Chicago Paper Association held its regular bi-monthly meeting at the Bismarck Hotel, September 25, at which time they announced the appointment of Stevenson, Harrison and Jordan, engineers, located at 205 West Wacker Drive, Chicago, to perform in a secretarial way for the association. The firm of engineers will provide a complete cost accounting service for members; will make reports, collect statistics and surveys and act in a beneficial way for the interests of the organization.

The entire time of the meeting was taken up with a discussion of the duties of the newly engaged firm of engineers and with the formulating of plans for the coming twelve months. A very constructive program has been outlined by this progressive organization.

Hodlmair Joins Nekoosa-Edwards Staff

Clarence Hodlmair, formerly of Parker, Thomas & Tucker, Chicago paper merchants, has accepted a position in the Chicago office of the Nekoosa-Edwards Paper Company, 208 South LaSalle street, Chicago. Mr. Hodlmair was with the firm of Parker, Thomas & Tucker for a period of seventeen years beginning with that company as an office and errand boy and working up to a position of responsibility with the well known Chicago house. Although young in years Mr. Hodlmair is very well known to the Chicago paper trade and his consistent efforts in growing up with the paper business have made for him many friends in this vicinity. He will spend a short time in the offices of the Nekoosa-Edwards Company, familiarizing himself with the line and with various details of his new work. Later he will form a valuable selling factor for his new organization.

News of the Trade

H. B. Law, of Dwight Brothers, and Otto Peterson of W. B. Conkey Company, Hammond, Indiana, are spending the week end visiting various mills in the Miami Valley.

Dale Johnson, with the Champion Coated Paper Company, of Hamilton, Ohio, for a number of years, has been transferred to the New York office of that company, where he will work with George S. Johnston, now in charge there.

Alexander Thomson, vice president of the Champion Coated Paper Company, has returned from a two months trip that took him up to within 740 miles of the North Pole. Mr. Thomson, who was accompanied by his family, had an opportunity to shake hands with the rescuers of the Nobile expedition and to talk with them. It was an interesting experience for the vice president of Champion and his family.

The Champion Coated Paper Company is well represented in Chicago at the Fall Meeting of the National Paper Trade Association. W. B. Randall, H. W. Suter and Logan G. Thomson, all from the mills at Hamilton, Ohio, and John Aust of the St. Louis office, Joseph D. Reed of Cleveland and George S. Johnston of the New York branch are in the city.

To Buy Paper Machinery for Soviet

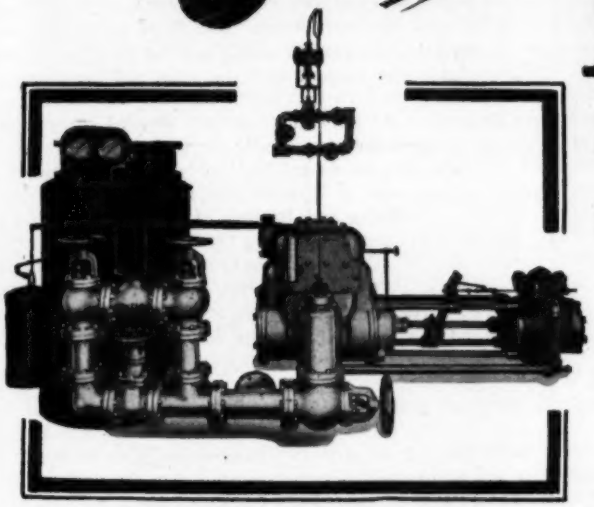
G. G. Khramtzoff, chief engineer, E. G. Goryatcheff, vice-president, and E. A. Kayatz, consulting engineer of the Central Paper Trust of the U. S. S. R. have arrived in the United States to complete negotiations for the purchase of over a half-million dollars worth of paper machinery for the new Balkhna Mill on the Volga River. The Central Paper Trust is the largest paper combine in the Soviet Union, accounting for about 30 per cent of the total paper and cardboard output and for over 80 per cent of the cellulose production.

"While considerable American equipment has been purchased for Soviet paper mills during the past few years", stated Mr. Khramtzoff, head of the delegation—"this equipment has been for handling and transporting materials. The present order is for the first American paper-making machinery to be bought for the Russian industry. The Volga mills, on which work was started in 1926 and which are now nearing completion, are among the largest in Europe and have already installed the largest paper machine in use on the Continent. After the installation of this machine, which was purchased in Germany, and the American machine we plan to add a third unit which will bring the annual capacity of the mills up to 105,000 tons of newsprint."

Two years ago Mr. Khramtzoff visited the United States on behalf of the Central Paper Trust while Mr. Kayatz was one of the group of engineers and workers who recently made a five-month's study of the American and Canadian paper industries. The favorable impression of American equipment and methods gained on these visits was undoubtedly instrumental in bringing about the present purchases.

The Soviet paper industry employed 30,600 workers and produced 267,000 tons of paper and 39,000 tons of cardboard last year.

Why certainly!



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360 Miles of News Print

(30 hours without a break)

62½ Hours on another Non-Stop Run

You feel that everything has to be right when a high speed news machine reels off 360 miles of paper without a stop or break. You KNOW it's so when another spins off twice as much, twelve car loads, 62½ hours without a break.

In both mills, a Fulton Dryer Drainage installation played an important part, kept the paper machine dryers right up to scratch. Such runs could never have been made with an inferior dryer drainage system.

You are not getting the dryer results without a Fulton Dryer Drainage System that you would get with one. Don't take our word for this. Visit some mill so equipped and ask questions. Also write us.

The Fulton Engineering Company

Middletown, Ohio, U. S. A.

Western Rep. Woodbury & Wheeler Co., 55 2nd St., Portland, Oregon, U. S. A.

Fulton

Dryer Drainage Systems

News Print Situation Improving in Canada

Despite Over-Production, Various Manufacturers Are Now Operating On Satisfactory Basis, Although Earnings Are Somewhat Lower—Some Observers of the Market Express View That Demand Will Soon Approach Rated Capacities of News Print Mills

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 1, 1928.—For the first time since over-expansion in the news print industry, the unsatisfactory news print markets have had the effect of changing the output of some machines over to the production of other grades of paper and thereby —to some degree—lessening the number of news print machines which must remain idle until the demand for news print again catches up to the capacities of the mills manufacturing that line of paper. It is understood that the E. B. Eddy Company has switched two of its news print machines over to other grades of paper. The two machines had a news print capacity of 120 tons daily. It is understood also that the plant of the Canada Paper Company, at Windsor Mills, is going off news print production and will confine its operations to the manufacture of fine paper. The Canada Paper's news print capacity totalled 35 tons daily. While the declines in the productive capacities of the news print mills are more or less insignificant as compared with a projected increase in the capacity of the Canadian mills, totalling some 1,400 tons daily, yet even the switching of these few machines over to other grades is a trend, and one which is also becoming evident in the United States.

While there is a projected increase of some 1,400 tons in the capacities of the Canadian mills, much of this tonnage is still a long way off. For instance it will probably be two years at least before the International's New Brunswick mill will be in a position to operate at capacity. In the meantime, despite the over-expansion of the industry, the various news print producers appear to be operating on a satisfactory basis, although earnings of most of the companies this year will undoubtedly be decidedly lower than a year ago. Some of the companies, though, this year signed up news print contracts which will allow them perhaps as great, or greater profits than in 1927. These companies are the exception rather than the rule.

There are some investors who feel that the bottom of the news print market has been reached and that the industry is approaching a period when the demand for news print will once again begin creeping up towards the rated capacities of the mills. At the moment the figures of consumption and mill capacities are still growing further apart. It is possible that the law of supply and demand has already operated to its fullest extent and that even if consumption does not show signs of catching up to the capacities of the plants, present prices will be maintained. Just now there seems to be a little steadiness in the market for news print, although many of the mills are operating at below 75 per cent of their rated capacities. If 1929 should witness any real revival in the demand for paper, all the news print shares would quickly respond marketwise to the indications of better times.

Abitibi Makes Another News Print Record

What is regarded as a world's record for continuous operation of a news print machine was made on No. 7 machine of the Abitibi Power and Paper Company, at Iroquois Falls, Ont., during the week of September 9, when it operated from 10 a. m., Tuesday, until 7:10 p. m., Saturday, a total of 105 hours and 10 minutes without a break.

Dryden Paper Plant To Be Enlarged

It is stated that the capacity of the Dryden Pulp and Paper Company, Dryden, Ont., will be doubled in the near future. The mill is now working to its full limit and the future looks bright. It is reported that one of the large Canadian paper companies, which did not have a kraft mill, made a firm bid of $60 per share cash for the control of the Dryden company, but the offer was refused, those in control asking $75 a share. It is said that negotiations are still on for the purchase of control. About three months ago the Bates Valve Bag Company, an American corporation, entered into a five-year contract with the Dryden company for the supply of kraft paper for the manufacture of the Bates bags. This contract will absorb about three-fourth of the output of the Dryden mill and will, it is said, show a profit of $7 a share on the Dryden stock outstanding. The Bates Valve Bag Company are constructing a large bag manufacturing plant at Dryden and it is probable that in due course this plant and the contract with Dryden will be increased. The Dryden Pulp and Paper Company are situated in the center of a densely wooded country, so that supplies of pulpwood are available for many years. The company has its own water power and is the only one manufacturing kraft and wrapping paper in Western Canada.

Notes and Jottings of the Trade

Judgment has been reserved by the British Privy Council in the patent suit of the Pope Appliance Company, of Boston, against the Spanish River Pulp and Paper Mills, Ltd. The case was originally instituted in the Canadian courts and has been carried through them, and the judgment shortly to be delivered by the Privy Council will be final. It is doubtful if judgment will be rendered before the Fall.

Mr. Legg, a well known paper agent from China, and a brother of H. B. Legg, paper agent of London, England, was in Toronto during the past few days looking up connections for his company. He was on his way to Vancouver on the return journey to China.

The Interlake Tissue Mills, Ltd., head office Toronto, has been demonstrating the uses of crepe paper at various points in Ontario, including London and St. Thomas, and now are doing the same work in Toronto.

As he attempted to swing himself feet foremost through a portion of the concrete form being built in connection with the new digester of the Abitibi Power and Paper Company, at Iroquois Falls, Ont., Palma Hotte, aged 35 years, a carpenter on construction, fell to his death, a distance of fifty feet. He leaves a widow and five children in Cochrane.

The Toronto Typothetae is carrying on a campaign for the use of better paper by the printing trade of the city. A circular just issued reads: "More profit through better paper is a thought which might be worth just a little development. It frequently happens that a man or firm has been using rather inferior stock for certain forms, such as letterheads, envelopes, invoices, statements, etc., overlooking the bad effect the receipt of such stationery might have on the customer. Good stationery creates a good impression on the recipient, and that often goes a long way. By inducing a customer to use a better grade of paper, there is a natural increase in the amount of profit on the stock, and thus a greater margin of net profit to the printer."

The Lincoln Pulp and Paper Company, Ltd., Merritton, Ont., have added onion skin to their lines of manufacture. The stock is put out in both glazed and unglazed and its introduction was well received by the paper buying public.

At a meeting of the board of directors of the Abitibi Power and Paper Company held last week the following additional directors were elected: George H. Mead, Dayton, Ohio; P. D. Wilson, Montreal; T. Wilson Sime and T. H. Watson, Toronto. Mr. Mead was elected chairman of the board and the regular dividends were declared on the common stock and 6 per cent preferred stock of the company, payable October 20 to shareholders of record at the close of business October 10.

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Steam Distilled Pine Oils
Wood Rosin

All Pure Pine Products

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N. Charter Burruss & Co.,
P. O. Box 99
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Scobell Chemical Co.,
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Marcy-Ralph Co.,
McCarthy Bldg.,
Syracuse, N. Y.

Borden & Remington Co.,
Providence, R. I.

Mailliard & Schmiedell,
203 California St.,
San Francisco, Calif.

Mailliard & Schmiedell,
Colman Bldg.,
Seattle, Wash.

Mailliard & Schmiedell,
947 E. Fourth St.,
Los Angeles, Calif.

Mailliard & Schmiedell,
Board of Trade Bldg.,
Portland, Oregon.

Mr. Homer D. Butts,
1701 Keenan Bldg.,
Pittsburgh, Pa.

Mr. August Hoffmann,
1003 Majestic Bldg.,
Indianapolis, Indiana

Lewis & Culp,
1407 West Jefferson St.,
Louisville, Kentucky

Persons Drug Company,
Montgomery, Alabama

Gage & Hulsey,
Pioneer Building,
Birmingham, Alabama

J. H. Hinz Co.,
825 Engineers Bldg.,
Cleveland, Ohio

L. J. McAnally Co.,
502 L. F. M. Bldg.,
Knoxville, Tenn.

Wm. L. Andrews Co.,
325 Fourth St.,
Bristol, Tenn.

Warren Brothers Co.,
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Chattanooga, Tenn.

Warren Brothers Co.,
1146 Broad Street,
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The Geo. C. Gorden Chem. Co.,
1406 West 9th St.,
Kansas City, Mo.

Baker & Collinson,
6545 Georgia Ave.,
Detroit, Mich.

E. B. Hawkins,
511 Fulton St. West,
Grand Rapids, Mich.

Homer G. Allan & Co.,
5752 Etzel Ave.,
St. Louis, Mo.

E. L. Wilson Hdwe. Co.
Beaumont, Texas

T. S. De Forest Co.,
Dallas, Texas

Mr. J. M. Jardy,
Havana, Cuba

Valls & Repilado,
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Asarco Mercantile Co.,
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Demand for Paper Reviving in Philadelphia

Continued Purchasing of Seasonally Active Lines Experienced by Local Distributors—Wrapping Paper and Coarse Paper Specialties Moving in Particularly Good Volume—Keen Competition and Accumulated Stocks Slightly Disturbs Fine Paper Market

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 1, 1928.—A sudden transition from a drifting and hesitant market took place in the closing days of the old month and dealers were gratified with the revival of interest in seasonably active lines. There is likely to be continued buying throughout the early days of the new month. Though a slight flurry in prices is believed to be at hand dealers are looking forward to a more steady tone in values. Owing to the great number of single grades of fine papers carried by the distributors, offerings are somewhat disturbing, as dealers compete for business in the autumn advance. While the wrapping paper and specialty dealers are enjoying a steadier demand, fine paper merchants are confronted with keen competitive bidding. Overlapping of stocks, such as bonds and writing papers, as well as book papers, creates a disturbing influence.

As the glut of tissue papers becomes more complicating to the dealers in large offerings that are being made at reduced prices, there are signs that this situation will be of short duration, as the cleaning out process wipes out the over stocked manufacturers and the merchants who have been involved in dumping. Manufacturers of tissues are ready to go ahead with autumn operations and are preparing dealers for higher prices. Krafts were less active in the past week although demand is fair for small orders. Volume buying of krafts is not anticipated until holiday needs begin to occupy the attention of consumers.

Demand for rags is draggy, with very little available supplies to be had of any grades. Mills are making their own quotations, which dealers are not prone to accept, owing to the scarcity of supplies in warehouses and the possibility of higher prices if sudden demand should be made on the wholesalers. It is believed by local dealers that mills are holding off their orders looking for lower prices but this is not possible with the dearth of rags experienced in present day markets. Dealers state they cannot afford to handle imported grades because mill offerings are so low as to make it unprofitable for shipments from over seas. This is particularly true of roofing stocks. Fiber rags are wanting in both orders and supplies. Domestic cotton rags are scarce and in fair demand. Woolen rags are in fair supply. There is prospect of higher prices for woolen rags as the season advances. Wipers are in good demand with fair amount of available stocks.

Willard Heisley & Co. Moves

Willard Heisley, who is well known to the mills as former traveler for Daniel I. Murphy, Inc., and who recently engaged in business on his own account at 1033 Chestnut street, as paper stock and rag broker, is now occupying offices at 218 Walnut street. Conducting his business as Willard Heisley & Co., he is engaged in the wholesaling of rags and paper stock, featuring domestic grades chiefly. He formerly traveled the nation for the Murphy concern for several years and was previously representative for manufacturers of fourdrinier wires, making the round of the mills in the East and Western trade.

Col. Franklin Talks On Strathmore Products

Elucidating the sales policies and various advertising features of the Strathmore Paper Company, of Mittineague, Mass., Col. B. A. Franklin, vice president and general manager, gave a most interesting and informative talk to the local representatives and allied industries at the Benjamin Franklin Hotel. Colonel Franklin demonstrated by charts his discussion of selling Strathmore lines, going into the details of how to improve sales, methods of selling better papers, and how to promote an interest on the part of the consumer in the higher grades of products through practical illustration of work to be achieved by use of distinctive commodities offered in the production of his firm.

He was followed by Fred May, sales promotion manager, who went into the intricacies of advertising, showing specimens of high quality printing and illustrating which could be effected by the allied industries in the use of Strathmore papers in various professional and commercial enterprises.

News of the Trade

Succeeding C. E. Hanson, who for several years has been Philadelphia manager of the Union Bag and Paper Corporation, William C. Mansfield is now in charge of the Quaker City offices. The new manager comes to the Philadelphia trade from the New York headquarters. Former Manager Hanson is now associated with the Cupples Company, of St. Louis, as special representative.

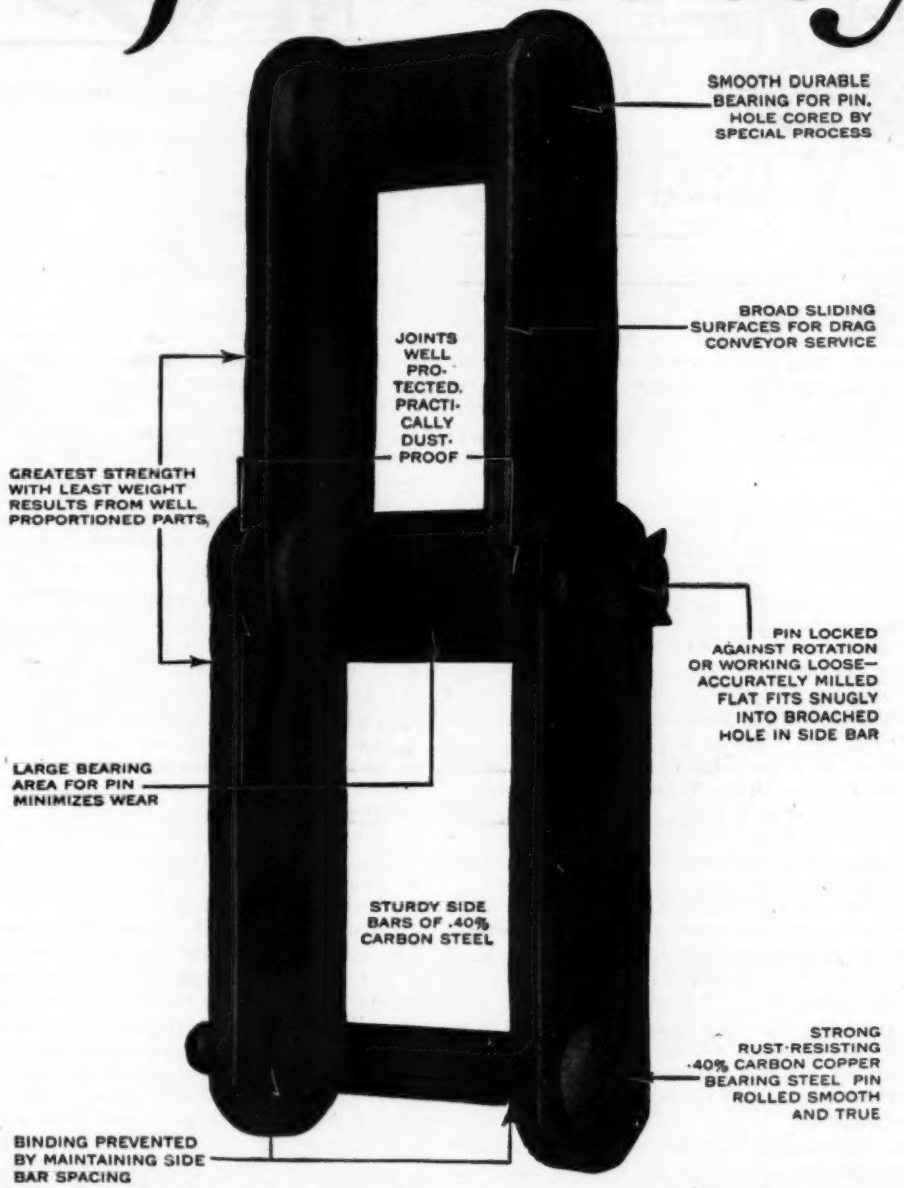
Following the severing of the association of William Lightfoot with the local branch offices of the United Paper Board Company, in the Bourse, his duties of manager of the Philadelphia territory have been assumed by James L. Nelson, formerly of the Metropolitan main offices. Mr. Lightfoot is now connected with the Federal Container Company, which recently was acquired by the Fibreboard Products Corporation, linked with the Zellerbach enterprises, as head of the production department.

As direct mail representative in the Philadelphia trade, A. E. Chase, who formerly was associated with the Garrett-Buchanan Company, will take care of the local wholesale distribution of the lines of twines and cordage manufactured by the Columbia Cordage Company, of Auburn, N. Y. Offices for the Philadelphia branch of the mills have been acquired by Manager Chase in the Drexel Building in Room 1083. Ever since the acquisition of the Park Weikert Company, which upon the death of the late Park Weikert, passed to control of the Garrett-Buchanan Company, the management of the twine and cord department of the latter company remained under Mr. Chase, until his appointment to the local mill representation a few weeks ago. The Columbia products formerly were solely distributed by the Park Weikert Company as direct mill dealers.

With the return of President Norbert A. Considine, of the Paper House of Pennsylvania, from a summer tour of Europe, it was announced that M. J. Kelly, former superintendent of the P. J. Glatfelter Paper Company mills, of York, Pa., who accompanied him, was confined in a hospital in Hamburg, Germany, for several weeks before making the return trip. The former superintendent of the Glatfelter mills was in good health before embarking, but was stricken with a stomach ailment which necessitated an operation upon reaching Hamburg. He was taken to the hospital shortly after arriving on the other side and remained there for six weeks. He is now convalescing at his home in this city.

Mr. Kelly was for more than three decades head of the Glatfelter mills production and was untiring in his efforts to bring that paper company to the forefront ranks of fine paper manufacturers in this section. He retired from active duties with the Glatfelter Company a year ago. Two of the leading Quaker City paper trade representatives are linked with the veteran mill executive through marriage of his daughters. They are President Considine, of the Paper House of Pennsylvania, with whom he resides, and Charles A. Labor, Quaker City manager of the Champion Coated Paper Company.

Superiority


SMOOTH DURABLE BEARING FOR PIN. HOLE CORED BY SPECIAL PROCESS
BROAD SLIDING SURFACES FOR DRAG CONVEYOR SERVICE
JOINTS WELL PRO-TECTED. PRACTI-CALLY DUST-PROOF
GREATEST STRENGTH WITH LEAST WEIGHT RESULTS FROM WELL PROPORTIONED PARTS.
PIN LOCKED AGAINST ROTATION OR WORKING LOOSE—ACCURATELY MILLED FLAT FITS SNUGLY INTO BROACHED HOLE IN SIDE BAR
LARGE BEARING AREA FOR PIN MINIMIZES WEAR
STURDY SIDE BARS OF .40% CARBON STEEL
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BINDING PREVENTED BY MAINTAINING SIDE BAR SPACING

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chillicothe, Ohio—The Mead Pulp and Paper Company is arranging an expansion and improvement program at its local plant for considerable increase in present capacity, including new building units with installation of a paper-making machine, coating machine and auxiliary equipment. The plant is now giving employment to about 700 operatives and it is proposed to increase this working force by about 200 persons as soon as program has been completed. Estimated cost has not been announced. As recently reported, the company will also enlarge its mill at Kingsport, Tenn., and has begun work on a new one-story addition to be used as a combined finishing department and storage and distributing unit.

Menasha, Wis.—The John Strange Paper Company, Washington street, has plans maturing for the construction of a new one-story boiler plant at its mill reported to cost about $24,000. Orbison & Orbison, 110 West College avenue, Appleton, Wis., are engineers.

Kalamazoo, Mich.—The Kalamazoo Loose Leaf Binder Company, West Kalamazoo avenue and Church street, manufacturer of loose leaf paper products and devices, has plans under way for a new one-story addition to its plant at Cobb avenue, fronting on the line of the Michigan Central Railroad, reported to cost close to $40,000, with equipment. The O. F. Miller Company, Pratt Building, is engineer. H. J. Broomhall is secretary and treasurer.

New York, N. Y.—The Hefter Folding Box Corporation, New York, care of Burnstine & Geist, 276 Fifth avenue, New York, attorneys, has been organized with a capital of $25,000, and is said to be planning early operation of local plant for the manufacture of paper and strawboard boxes and other containers.

Chicago, Ill.—The National Paper Company, 832-4 West Austin avenue, is asking bids on separate contracts for a proposed three-story addition at Green and Austin avenues, to cost about $45,000, with equipment. A. J. Buerger, 5515 West Division street, is architect.

Indianapolis, Ind.—The Beveridge Paper Company, 717 West Washington street, has filed plans for the construction of a new two-story building, 23 x 36 feet, at 700 West Maryland street, to be equipped as a turbine room. Work will begin at once. Estimated cost has not been announced.

Sturgis, Mich.—The National Carbon Coated Paper Company is said to be arranging call for bids for proposed new plant addition to be two-story, 80 x 200 feet, brick and reinforced-concrete, estimated to cost close to $70,000, with equipment. Billingham & Cobb, 211 Woodward avenue, Kalamazoo, Mich., are architects and engineers.

South Jacksonville, Fla.—The Florida Paper Mills, Inc., South Jacksonville, is said to be considering rebuilding of warehouse on Atlantic boulevard, destroyed by fire September 18. The estimated amount of loss has not been announced. The building has been occupied by another company under lease for some time past.

Pittsburgh, Pa.—The Whitaker Paper Company, 101 Ninth street, has concluded arrangements for the purchase of a tract of land at Beaver and Western avenues, 140 x 540 feet, and will use the site for the construction of a new building designed primarily for storage and distributing service. Plans will be drawn at an early date; the unit will occupy practically the entire site, and is reported to cost close to $200,000 with mechanical-handling and other equipment.

Salt Lake City, Utah—The Western Waste Paper Stock Company is reported planning rebuilding of two-story structure used for storage and distributing service, destroyed by fire September 18, with loss reported in excess of $15,000.

Three Rivers, Mich.—The King Paper Specialties Company, 815 North Main street, recently organized, is reported planning early operation of mill in this vicinity for the manufacture of paper goods. Frank B. King heads the organization.

Harrisburg, Pa.—Asam Brothers, Inc., 919 Arch street, Philadelphia, Pa., wallpapers, has leased the Tausig Building at 323 South Cameron street, Harrisburg, and will occupy for a new storage and distributing plant for the Central Pennsylvania district. It is proposed to equip the building for early service.

Spartanburg, S. C.—The Rogers Fibre Company, Kennebunk, Me., is making ready for the early operation of its new branch plant at Spartanburg, for which local building recently was leased. Machinery from Kennebunk will be installed as well as other equipment for the manufacture of fiber products of different kinds, including containers and receptacles. The new plant will give employment to more than fifty operatives for initial production. Leon Rogers is president and Elliott Rogers vice-president.

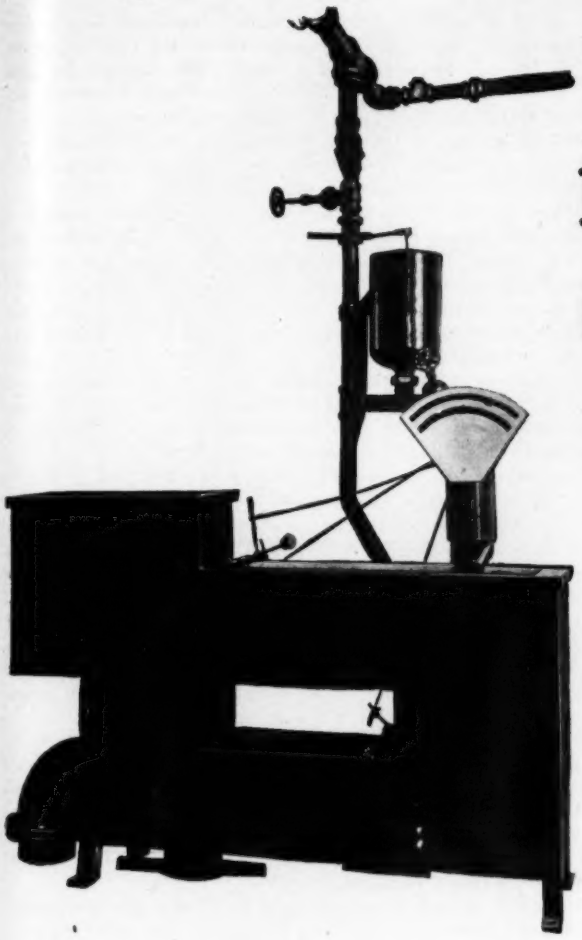
Chicago, Ill.—The Ideal Wrapping Products Company, 3749-51 Montrose avenue, recently organized with capital of $20,000, is said to be arranging early operation of local factory for production of wrapping papers, etc. The new company is headed by Louis Marcus and Mortimer Protus.

Merritton, Ont.—The Lincoln Pulp and Paper Company, Ltd., Merritton, operating the Lincoln and Lybster paper mills, is said to have plans under way for extensions and betterments to provide for considerable increase in present capacity. It is understood that work will be carried out primarily at the Lincoln plant units, and will include installation of considerable new equipment. Estimated cost of expansion has not been announced.

Prince George, B. C.—The Fraser Companies, Ltd., Edmundston, N. B., is said to have plans under way for the construction of a new pulp and paper mill in the vicinity of Prince George, consisting of a numer of units with machine shop, power substation and other mechanical structures, to cost more than $1,500,000. The plan will have an initial rating of about 600 tons of finished paper per day.

Montreal, Que.—The Gatineau Power Company, comprising one of the main power units in the system of the International Paper Company, New York, is disposing of a bond issue of $7,500,000, a considerable portion of the proceeds to be used for expansion, including hydro-electric power development and transmission lines.

Boston, Mass.—The Royal-Dutch-Shell Company, London, England, operating the Asiatic Petroleum Company, 65 Broadway, New York, and other properties in the United States, has concluded negotiations for the purchase of a substantial interest in



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The exclusive features of the DeZurik Stock Consistency Regulator make possible instantaneous regulation of stock. With it no stock can be out of balance with the weight required for a particular run. No stock can go over the machine while the valve is being opened or closed.

—and the operation cost is almost nothing. It regulates without power of any kind—but is positive in its operation.

Let us send you complete information on the DeZurik Stock Consistency Regulator —without obligation on your part. Write today.

Unlike other regulators, the DeZurik Stock Consistency Regulator has its own constant water head control. Since water pressures vary in paper mills, this is an important feature—and another reason why you should investigate this regulator.

Control of stock is just as easily done as looking at a pressure gauge. A simple turn or two of a small bolt makes any adjustment necessary.

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: **350 Madison Avenue**

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Smith & Valley Iron Works Co., Portland, Oregon

the Flintkote Company, Inc., Park Square Building, Boston, Mass., manufacturer of prepared roofing and building papers, with main mills at Little Ferry, N. J., and New Orleans, La. As a result of the acquired interest, a fund of about $9,000,000 will be secured by the Flintkote organization, a portion of the appropriation to be used for general expansion and development for increased capacity.

New York, N. Y.—The Central Paper Trust of the Soviet Russian Government, Petrograd, is perfecting plans for the early purchase of paper-making and auxiliary machinery in the United States, for the new Balakhna paper mill unit on the Volga River, on which work is now in progress. It is understood that proposed purchases will aggregate close to $500,000, and E. G. Goryatcheff, vice-president, accompanied by E. A. Kayatz, consulting engineer, and G. G. Khramtzoff, chief engineer of the Central Paper Trust, have arrived in America to select necessary equipment. The officials will maintain headquarters at the offices of the Amtorg Trading Corporation, 165 Broadway, New York, official buying agency for the Soviet Government.

New Companies, Etc.

Boston, Mass.—The M. & S. Paper Products Company has been incorporated with a capital of $50,000, to manufacture and deal in paper products. William J. Good is president; and Genevieve E. Bucher, 51 Chester avenue, Waltham, Mass., is treasurer and representative.

Raubsville, Pa.—An involuntary petition in bankruptcy has been filed against the Northampton Paper Mills, Inc. The assets and liabilities have not been reported. George F. Coffin has been appointed referee in bankruptcy for the company.

Philadelphia, Pa.—An involuntary petition in bankruptcy has been filed against the Girard Wall Paper Company, 1332 West Girard avenue, and L. Leroy Deininger has been appointed referee in bankruptcy for the company.

The Romance of Paper

DAYTON, Ohio, October 2, 1928.—The Dayton Advertising club the past week had as its luncheon guest, Carl R. Greer, of the Beckett Paper Company of Hamilton, who addressed the members on "The Romance of Paper." The luncheon was held Wednesday at the Miami hotel and was largely attended.

Mr. Greer, who is an author and student of economic problems, stated that the Chinese were the inventors of the first paper making process, which consisted of taking the water plant known as "Papyrus" and drying the pulp until it was suitable to write upon.

"In more advanced stages of civilization," the speaker asserted, "the minute cellulose fibers of plant life were crushed and mixed with water at about the ratio of ten parts of water to one part pulp. The solution passed over a sand screen, the water seeped through the fiber and left a blanket of substance which was used for paper. This is the hand process by which paper is made today."

The club thus learned from a paper mill man that the method has not been materially changed since the early ages when the Chinese first discovered the art of paper making.

Continuing his talk, Mr. Greer said:—"In the modern plant such as you find in the Miami Valley, one of the greatest paper producing sections in the United States, and in other paper mill centers, machinery operating at great speed uses the same method. The pulp of trees and plants is mixed with water; the water is drained off, the fiber substance is squeezed until the water is entirely removed—and we have paper. It takes about 40 gallons of water, mixed with pulp, to make one pound of paper.

"Paper is truly one commodity which is an index of the culture and civilization when read in terms of per capita consumption of paper in a nation."

Mr. Greer made no attempt to cover the technique of paper making, desiring merely to impress in plain words the manner of manufacture and to show the Advertising club the importance of the industry to their craft.

Acquires Hedges-Walsh-Weidner Co.

George E. Learnard, president of the International Combustion Engineering Corporation, announces one of the most important acquisitions in the history of the company. Negotiations have been completed for the purchase of the Hedges-Walsh Weidner Company, of Chattanooga, Tenn., a recent combination of the Casey-Hedges Company and the Walsh & Weidner Boiler Company, two of the oldest and most widely known boiler manufacturing companies in the United States.

With this new company, International Combustion acquires a large and general boiler business, and augments its present extensive manufacturing facilities with two of the most modern boiler plants in the country, one of which is an outstanding factor in the sectional header boiler field, and the other has facilities for the manufacture of the largest drums which can be made in the United States. This most recent acquisition is in keeping with International Combustion's policy of expansion along sound economic lines by the acquisition of going units of high standing, whose business fits in with the company's policy of completely covering the fuel burning and steam generating field.

Combustion Engineering Corporation's present line of boilers, augmented by that of the Hedges-Walsh-Weidner Company, makes it possible for Combustion to offer any type of boiler, large or small, now available on the American market. This diversity of boiler equipment, supplemented by Combustion's already complete line of fuel burning equipment, enables the Company to install steam generating plants of all types and sizes—complete from coal bunker to ash pit—on one contract, with the important advantage to the purchaser that he may place responsibility for the satisfactory performance of the complete plant with one organization.

The acquisition of the Hedges-Walsh-Weidner plants is of particular importance to Combustion at this time as the plants provide manufacturing facilities of sufficent size to build large steam generating units such as those Combustion has recently installed at the Kip's Bay plant of the New York Steam Corporation and those now being built for the East River Station of the New York Edison Company.

The new acquisition will function in all phases of its activity through Combustion Engineering Corporation, the American operating subsidiary of International Combustion Engineering Corporation.

International Awarded Government Contract

The International Envelope Corporation, a subsidiary of the International Paper Company, has been awarded the contract for supplying the United States Post Office Department with twelve billion eight hundred million stamped envelopes and newspaper wrappers for the four year period commencing January 1, 1929. The International Envelope Corporation was the lowest bidder, with a bid of $13,209,793, which was $105,000 below the bid of the present supplier.

The paper will be supplied by the International Paper Company and the envelopes will be made by the International Envelope Corporation, in which it is understood the Standard Envelope Manufacturing Company, of Cleveland, has an interest.

This contract is another step by the International Paper Company towards diversification of products. The company has grown from a $100,000,000 company in 1924, when its principal product was news print, to the proposed $550,000,000 company which will come into existence when the new holding company, International Paper and Power Company, is formed, and takes over the additional New England Power Association stock. More than half of the new company's assets will be public utility properties and the balance well diversified, including plants producing news print, writing and book papers, envelopes, sulphite pulp for rayon, sanitary napkins, wrapping paper, bags, cement sacks, wall board, mulch paper, and many other products.

View in paper mill designed and built by Austin for the Columbia River Paper Mill Co., Vancouver, Wash. Another project is now under way for this firm.

Austin Guarantees Building Results—

And You get them with Speed and Low Cost

The saving in time, money and inconvenience provided by Austin Building Service has won the endorsement of leading paper mill engineers and paper manufacturers from Coast to Coast. Three plant projects are now under way by this Company for paper mills on the East and West Coasts and in New York State.

The Austin Method of Undivided Responsibility guarantees **in advance** the total cost of the completed project, the completion date with bonus and penalty clause, if desired, and quality of both materials and workmanship.

Austin's skill and experience in meeting the problems of paper mill construction, plus intelligent cooperation with the plans of paper mill engineers, assure the prompt completion of efficient modern mills at reasonable cost.

Each of thirteen district offices from Coast to Coast furnishes a local or national service. For approximate costs and other interesting building information on paper mills of any size in any locality, wire, phone the nearest Austin office or mail the memo below.

THE AUSTIN COMPANY ***Engineers and Builders—Cleveland***

The Austin Company of California Los Angeles and San Francisco The Austin Company of Texas: Dallas New York Chicago Philadelphia Detroit Cincinnati Pittsburgh St. Louis Seattle Portland

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Complete Building Service

Memo to THE AUSTIN COMPANY, *Cleveland*— We are interested in a

.....project containing.....sq. ft. Send me a personal copy of

"The Austin Book of Buildings." Individual.....

Firm..... City.....

Power Plant Section

Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Modernizing the Mill and Power Plant

Refractories

A prominent firm of combustion engineers, whose business may be said to be built about the application of refractories in furnace installations, frankly states: "We have found there is no one refractory that is a panacea for furnace troubles. Neither is there any one shape of block or any one special method of handling air that has universal application. Every design of furnace for different type of fuel requires its own consideration."

This gives a very good idea of the importance which should be placed upon the consideration of refractories when seriously approaching that never ending task of modernizing the mill and power plant. Both in the power plant of pulp and paper mills and in the chemical production of pulp, by either the sulphite, soda or sulphate processes, production costs are materially influenced by the employment of the most suitable of available refractories, and, which is not so generally appreciated, upon how the refractories are used and installed. The problem is certainly considerably more complicated than that of simply lengthening the life of fire brick.

Without going into an extended consideration of refractories, it may be stated that the most refractory of commercial substances is carbon, but carbon is also a good heat conductor, discounting in a measure its value in reducing the loss of furnace heat. However, certain carbides, now commercially available in quantities as products of the electric furnace, stand next as refractories and do not have such high heat conductivities. For this reason, silicon carbide, commonly known as carborundum, and siloxicon, a substance containing varying amounts of carbon, silicon and oxygen, have come very much to the front as the chief constituents of widely used refractories. A certain amount of fire clay (SiO_3), which is an impurity, and an added binder make up the so-called pure carborundum refractory block of commerce, so such product contains not more than 90 per cent of silicon carbide, as a maximum, and possesses quite different characteristics from those of pure carborundum.

Secret of Refractory Life

This refractory product is mentioned first for the reason that early experience with carborundum blocks has thrown considerable light not only upon how such refractories should be installed and used, but also upon how the more familiar fire clay refractories should be employed. That is, how they should be used to secure the long life to furnace linings, etc., which is such an important consideration in any power house, and particularly so in the 24-hour plant of the pulp and paper industries.

It was found that carborundum linings when backed up by solid fire clay brick construction often disintegrated rapidly. This was at first attributed to oxidation, the silicon carbide combining readily with the air, under certain thermal conditions, to form a carbonate with a low fusing point. It was discovered, however, that very similar disintegration occurred when non-oxidizing silicon carbide blocks were substituted for the ordinary carborundum linings, *i.e.*, when the same fire clay brick construction was employed for backing. This disintegration may even occur in furnaces having reducing atmospheres.

Since the non-oxidizing silicon carbide blocks, in which each grain of the pure silicon carbide is enveloped, or incased, in a thin air tight film of a special binder, it was soon appreciated that the disintegration of the carborundum linings could not be due simply to oxidation. It was found, furthermore, that silicon carbide functions best when air cooled. In fact, the life of silicon carbide materials is prolonged indefinitely by proper air cooling. By keeping the face temperature of the block below the fusing point of the ash, below the softening point of the material and below the eutectic point of the refractory material and the slag, the carborundum lining takes on the properties essential for long life, *i.e.*, non-clinkering and non-spalling characteristics.

The same phenomenon occurs in the case of fire clays and other refractories and is advanced today by leading combustion engineers as the secret governing the successful application of refractories to furnace linings, etc. When high grade flint clays are face cooled in this manner, they assume all the desirable characteristics of silicon carbide, except, of course, the resistance of that material to abrasion.

Air cooling of the face of the refractories has even been successfully employed to prolong greatly the life of acid brick in wood burning furnaces, where the slag from the wood ash is highly alkali and, without such protection, attacks the acid brick at a eutectic point of form 1,600 to 1,900 degrees Fahrenheit. By proper air cooling, the chemical combination between Pennsylvania flint clay, which is very acid, and wood ash slag has been effectively resisted in furnace temperatures running close up to 3,000 degrees Fahrenheit.

The prolongation of furnace lining life by the simple and as has proved remarkably effective expedient of keeping the face temperature of refractory blocks and linings below the eutectic point of the refractory material and the slag has naturally brought about radical modifications in boiler furnace constructions. No attempt will be made here to go into the question of modernized furnace constructions, however, for almost every installation presents a special problem, if full advantage is to be taken of the developments in the refractory field and of the strides made in combustion engineering, but a few general remarks regarding the functions and advantages of the air cooled furnace walls as recognized at the present time can well be advanced; first, concerning air cooled wall applications as pre-heaters and second, as furnace lining protection.

As preheaters, the demands are determined by the requirements of the fuel burning equipment. In pulverized fuel applications, for example, the air cooled walls may be called upon to supply preheated air for drying the pulverized coal, for flame control and as secondary air for promoting combustion. A supply of air heated to from 400 to 500 degrees Fahrenheit can be introduced into the furnace directly from the air space of the furnace walls, a scheme applicable to oil and gas fired furnaces as well as to those burning pulverized fuel.

Pulp and Paper Mills

Oliver Continuous Filters,
(Drum Type)
and
American Continuous Filters
(Disc Type)
as

Deckers after Screening,
Save-Alls,
High Density Thickeners before Bleaching,
Bleach Washers,
Brown Stock Washers,
Lime Mud Washers,
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Board Forming Moulds,
Combination Units.

Using apparatus built by

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not only have the advantages provided by up to date machines but also the experience gained through years of actual mill operation by both

OLIVER CONTINUOUS FILTER CO.

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CHICAGO, 565 W. Washington Blvd. SALT LAKE CITY, Felt Bldg.
LOS ANGELES, 108 W. Sixth Street

LONDON, PARIS, JOHANNESBURG, TOKYO, MELBOURNE, HONOLULU, MONTREAL, SOERABAIA, Java, MANILA, SCHEVENINGEN, HALLE, Germany

Factories
HAZLETON, Penna. OAKLAND, Calif.

In modern stoker practice, also, a supply of preheated air materially stimulates combustion and betters the furnace efficiency. The volatile constituents of the coal distil more rapidly, providing a longer travel for the coke. This insures more complete combustion of the coke, action which is dependent more upon a volumetric than a weight supply of air. That is, the higher the temperature of the air supply, the more thorough is the so-called scrubbing action of the air for a given weight. Air preheated to 350 degrees, for example, occupies 50 per cent more space than air at 70 degrees and with the prolonged travel of the incandescent coke effects a more thorough combination with the carbon. The result is that better (more complete) combustion is secured with less preheated air (by weight), less excess air provision and higher CO_2 content in the products of combustion. These desirable improvements increase the furnace temperature, a development which is permissible with and commands the use of effectively air cooled furnace walls, and elevates the efficiency of the furnace. Furthermore, they are instrumental in prolonging the life of the furnace, in minimizing maintenance expenses and in guarding against costly shut downs.

Furnace Lining Protection

Higher furnace temperatures, attributable to the use of pulverized fuels, oil and gas burners and modern stoker practice, or to the continuous driving of boilers to meet increased demands, have also greatly increased requirements for efficient, economical and effective furnace lining protection. These demands have in a number of instances been discharged in a most satisfactory manner by the installation of air cooled furnace walls designed with due regard to the laws of heat transfer, rather than to heat insulation.

Thick-faced air cooled walls have been found unsatisfactory for the same reason, though to a somewhat lesser extent, that solid masonry walls have failed under temperature conditions pertaining in furnaces operated under present day excess ratings. Faces slag, sprawl, soften and in time melt, for the rate of heat transfer is low. The thick walls, like the solid masonry construction, have high heat capacity.

A comparatively thin furnace wall, or lining, properly air-cooled, is found to stand up very much better. The cooling medium keeps the face temperature of the refractory well below the eutectic point of that material and the slag, so the thin wall does not soften, slag, spall or erode. So effective is the protection afforded by suitable air cooling, in fact, that a thin refractory furnace lining wall will outlast several much thicker ones and promises to relegate the solid masonry construction for furnace walls to the practices of the past.

The emphasis placed upon approved methods of furnace construction, or how refractories should be used and installed, rather than upon the refractories themselves, is made advisedly, for the principles by which a rapid transfer of heat is obtained through a relatively thin refractory lining, by keeping the face temperature of the refractory well below the eutectic point of the materials involved, whatever the method of cooling employed, are basic and the furnace linings can be built of any variety of approved refractories.

Quality Characteristics of Refractories

As for the refractories, there are numerous approved brands on the market today, which in the case of the fire clays in particular are quite commonly known by geographical names or designated by trade nomenclature. This makes any analytical consideration of specific fire clay refractories here, in any but the most general way, quite out of the question. About all that can be done is to group first-grade fire brick into three general classes: those suitable for stoker-fired furnaces where high overloads are carried, where high temperatures are developed by pulverized, liquid or gaseous fuels or where other extreme conditions of service are liable to occur; refractories for ordinary stoker settings not subject to excessive overloading of the boiler but where the rates of driving are usually high; and lastly, those for ordinary settings where the boilers are not overloaded customarily and are forced only at rare intervals and for short periods.

The plastic point of all three classes, A, B and C, should be in excess of 2,400 degrees Fahrenheit, at least, under a unit stress of 100 pounds per square inch. The fusing points of the classes, the temperature at which the refractories will fuse, should be in the case of Class A 3,200 to 3,300 degrees; for Class B, 2,900 to 3,200 degrees; and for Class C, 2,900 to 3,000. The relative hardness of the refractories based upon an arbitrary scale of from 1, extremely hard, to 10, relatively soft, is for Class A, 1 to 2; for Class B, 2 to 4; and for Class C, 4 to 6. The crushings strengths of the refractories run from about 6,500 pounds for Class A to 15,000 pounds for Class C, the load being applied at the center of a 4¼ inch face by a steel block 1 inch square. The sizes of the nodules, average size of the flint grains when the brick is carefully crushed, are rated on a scale of from small, about the size of anthracite rice, to large, the size of anthracite pea coal. The ratio of nodules designates the percentage of a given volume occupied by the flint grains. High is represented by from 90 to 100 per cent; medium, 50 to 90 per cent; and low, 10 to 50 per cent. As applied to the three classes of first-grade fire brick, the nodules for Class A should be medium and their ratio high; for Class B, medium to medium-large in size and medium to high in ratio; and for Class C, medium to large in size and medium-low to medium in ratio.

This is an extremely flexible classification and, at best, gives only an idea of brick characteristics, but it is about the best that can be offered, particularly as fire brick is made up by combining certain more or less variable proportions of hard, or flint, clays with soft, or plastic, clays. The former are the heat resisting elements of the mass, while the latter soften at a lower temperature and act as a bond binding the hard clay (flint) fragments together when the brick is burned, producing a homogeneous mass of requisite physical strength. This fire clay is principally a combination of silica and alumina, with more or less impurities, and the quality of the fire brick depends upon the proportions of silica and alumina present.

In building up refractory brick walls, the brick should be laid in fire clay of the same quality and, as the joints in the brick work are the weakest point, the brick should be laid close, using as little fire clay or cement as possible. Where different grades of brick are used, as is quite frequently deemed advisable, it is better to lay all the brick with the highest grade of fire clay than to have the higher grade brick set up in fire clay of lower quality.

Refractory Applications in Pulp Processes

The use of refractories in pulp and paper mill services is not limited by any means to power plant applications, however, so it might be well to refer here to uses of refractories in some of the chemical processes involved in the production of pulp and, consequently, of very pertinent interest to the paper making industry. In acid towers, digesters in the sulphite process, lime kilns, rotary and smelting furnaces, incinerators, etc., the processes entailed are very dependent for their satisfactory and economical discharge upon the use of suitable refractories.

In the production of pulp by the chemical process, through various thermo-chemical processes are involved, about the only real needs for the use of refractories are in connection with the inner lining of the digesters, in acid towers and in lime kilns. A special acid proof brick is usually employed and in the digesters the refractory is laid next to the lead lining of the steel digester tank shell. The brick are customarily laid with a special cement, one prominent manufacturer of refractories recommending a mixture of equal parts by weight of pulverized silica and litharge (lead oxide) with glycerine, and if a double brick lining is used it is considered good practice to separate the linings with about an inch of Portland cement.

In the lime kilns, approved practice seems to be to employ three different grades of refractories, one in the burning zone, another

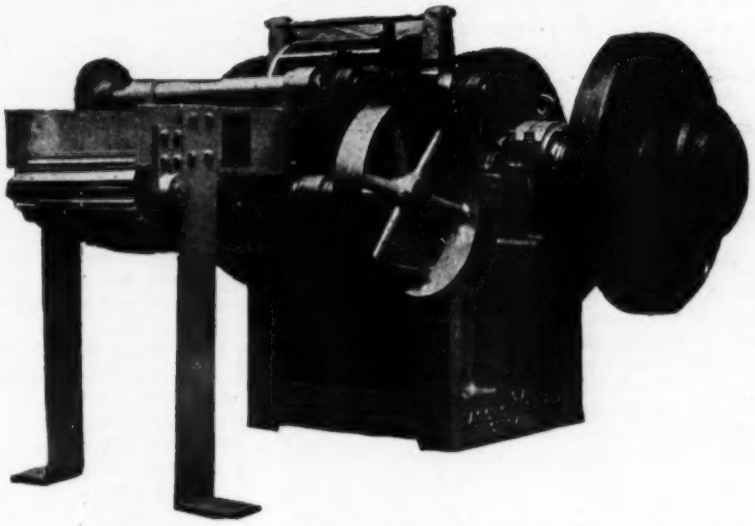
Nothing is apt to cost so much as a bearing that cost so little

You men who plan, build, use or pay for machines of any kind, remember this: It costs more to replace a poor bearing than to buy the best one that SKF ever produced. AND SKF ANTI-FRICTION BEARINGS ARE THE HIGHEST PRICED IN THE WORLD.

SKF Puts the Right Bearing in the Right Place

ANOTHER ONE OF THE 37 PAPER MACHINERY MANUFACTURERS THAT USES SKF BEARINGS

Taylor, Stiles & Company



Another Paper Machinery Manufacturer Adopts The Highest Priced Bearing in the World

AND now it is 37 manufacturers of paper machinery that use SKF Bearings! For the big, brute job the "Giant" Rag Cutter shown above has to do, SKF Spherical Bearings are used by the Taylor, Stiles & Co. Long-life under the hardest going has demonstrated the ruggedness of these bearings in many types of heavy duty applications.

Two Spherical Bearings support the 3200 pound cutter head. Continuous service at 750 R.P.M. does not affect the smooth running qualities of these bearings or the accuracy of original settings. Wear is a negligible factor and *no bearing adjustments are ever required.* Dust and grit are kept out by sealed housings and fresh lubricant is needed only three or four times a year.

SKF INDUSTRIES, INCORPORATED
40 East 34th Street, New York, N. Y. 2126

SKF

THE HIGHEST PRICED BEARINGS IN THE WORLD

in the cool end and a third in the coolers. A separate grade of cement is also recommended for each variety of refractory, or at least a very high grade refractory cement for the brick in the burning zone.

In soda and sulphate process mills, the rotary and smelting furnaces present the chief demands for refractories. Both Pennsylvania and mid-western clays are satisfactorily employed, although for the smelting furnaces a chrome brick, made from chrome ore, which is exceedingly refractory, dense and neutral, non-oxidizing and practically infusible, is sometimes used to advantage for the walls, bottom and flues of the furnaces, employing fire brick only for the roof. Here, again, very high quality cements only should be used.

This very sketchy picture of the refractory requirements which are distinctly pulp mill demands is presented simply to focus attention upon the really important part played by refractories in the actual production of paper, quite aside from the dependance of the economical power plant upon the proper use of suitable refractories.

Refractories in Smoke Abatement

A refinement in the use of refractories in power plant service, a brief description of which can very properly conclude this superficial portrayal of refractory demands in the pulp and paper industries, the aim of which has been simply to impress mill men with the necessity of giving most careful thought to providing suitable and adequate refractory equipment when modernizing their mills and power plants, is a smoke abatement system which has been installed in the Hopewll plant of the Hummel-Ross Fibre Corporation and in the Newark plant of the Waverly Paper Board Company. The system not only eliminates all smoke nuisance, but the refractories serve as important adjuncts to the actual combustion of the fuel.

The system consists essentially of a refractory preheater built integral with the furnace wall through which air is passed. The air in its passage becomes highly superheated and at the same time serves to maintain a face temperature in the refractory wall well below the fusing point of the ash, the softening point of the preheater walls and below the eutectic point of the refractory material and the slag. This air is under considerable pressure and is injected into the furnace through jets aimed at the coking zone of the fuel bed.

The inrushing, preheated air penetrates into the incandescent coke bed and sets up a turbulent action in the furnace which serves to draw the excess air from the rear of the furnace and mix it thoroughly with the super-rich volatiles from the coking zone. The result is that a complete combustion of the fuel is secured and the elimination of all smoke, effecting marked economies in the utilization of fuel. The cooling effect of the air passing through the refractory preheater, furthermore, insures long life to the refractory linings.

Paper Mill Construction Awaits Suitable Site

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., September 21, 1928.—The fate of half a dozen large industrial projects, among them a $3,000,000 paper mill, in Portland, Ore., or its vicinity, Vancouver, Wash., awaits decision of the Port of Portland commissioners regarding the draining of Columbia slough and the dredging for a deep water way.

L. B. Menefee, Sr., president of the Menefee Lumber Company, states that he and a group of business associates have been contemplating such a plant for a year, but because assurance has not yet been forthcoming as to conditions along the Columbia River at that point, they cannot go ahead with the development.

The port commissioners have taken the matter under serious advisement and a report is expected shortly. Engineers are making various surveys and filing reports. Percy Allen, president of the Columbia River Timber Company also stated that he knew personally that there would be a large paper mill established as soon as local conditions became favorable to the project.

International Envelope Co. Buys Plant

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 3, 1928.—Announcement has been made of the purchase of the Mercantile Corporation of this city by the International Envelope Company of New York.

For some time negotiations have been in progress whereby the fulfillment of the $13,000,000 United States stamped envelope contract may be effected in Dayton where for nearly a score of years the stamped envelopes and newspaper wrappers have been printed and manufactured. An option was obtained on the Dayton Scale Company's buildings on East First street by the International Envelope Company, which secured the four-year contract by submitting the lowest and best bid, in the expectation that the factory could be transformed into an envelope plant but the outright purchase of the Mercantile Corporation's plant on Front street, will make this unnecessary.

No announcement was made as to the consideration figuring in the deal.

The Mercantile Corporation has a fully-equipped envelope plant and owns a number of patents that are considered valuable. The corporation has given employment to approximately 1,000 men and women and has paid out annually hundreds of thousands of dollars for labor.

For a time it thought a Cleveland concern which is understood to have joined the International Envelope Company in the contract, might produce the Government output in that city but Dayton is ideally located for the work, and the fact that the Mercantile Corporation has a fully-equipped plant, will make it unnecessary for the successful bidders to lease or buy another building and install expensive envelope machines.

It is, of course, believed that the International Paper Company will supply the paper for the contract. This material in the past has been furnished by Dayton and Franklin paper mills and deprivation of this business will be keenly felt in the Miami Valley, should the raw product be obtained in another section of the country.

Paper Man Honored

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., September 28, 1928.—Celebrating an unusual anniversary, double in its nature, John H. Walker, head of the land and tax department of the Crown-Willamette Paper Company, won particular distinction recently.

The honor accorded him was shared by his wife and was in the form of a banquet tendered him at the Henry Thiele establishment, by employees of the Crown-Willamette Company. Mr. Walker lives in Oregon City but the party was held in Portland. The celebration featured 42 years of marriage and 40 years of continuous service with the Crown-Willamette Company. Mr. Walker started work as timber superintendent and brought to the mill the first logs used in making paper at Oregon City.

He was presented an engraved silver piece by the company and a gold pin with three diamonds, in remembrance of the long service. The employees gave him a pen and pencil set.

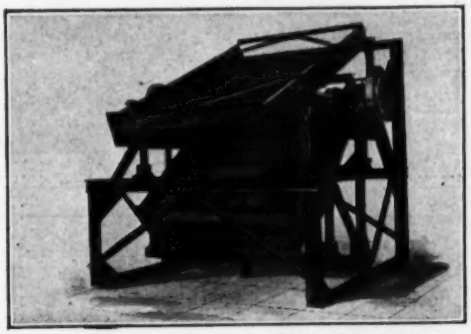
O. W. Mielke Heads Hawaiian Goodwill Excursion

PORTLAND, Ore., September 28, 1928.—O. W. Mielke, president of the Blake-Moffitt-Towne Paper Company, Portland, Ore., is head of a group of committees sponsoring a goodwill trade excursion to the Hawaiian Islands from the northwest. The group will sail November 9 aboard the luxurious steamship *Malolo*, and will include more than 300 from several northwest states. Governor Farrington of the Islands has extended official invitation to these excursionists and it is expected that the governors of the various states and the mayors of the principal cities will be among those making the trip.

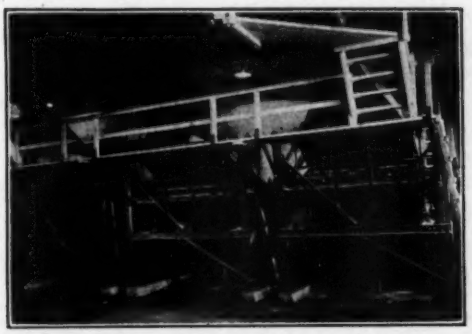
Mr. Mielke is doing considerable traveling in the interests of this booster tour. The idea is to make this the most representative group of Portland business men and their families that has ever sailed from a Pacific port together.

RYTHER AND PRINGLE COMPANY
CARTHAGE N.Y.

RYTHER CHIP SCREEN

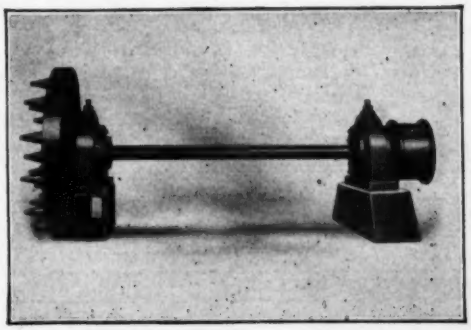


All steel construction
Floor space 10 feet square,
high capacity, 2 H. P. per unit.



Showing rear view of three
Ryther Chip Screens operating
in multiple, 25 cords per hour.

WOOD CHIP BREAKER



Chips treated by the Wood Ideal Chip Breaker installed under the chipper hood are uniform in size, thoroughly separated, dusted free and clean, ready for screening.

FOR CANADA REFER

CANADIAN INGERSOLL-RAND COMPANY, LIMITED
10 PHILLIPS SQUARE, MONTREAL, P. Q.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending July 31, and for the Seven Months Ending July 31, 1928, as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	July				Seven Months Ending July 31			
	1927		1928		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and manufactures (total)	.....	$12,067,168	.....	$12,649,377	.....	$83,670,183	.....	$88,594,331
Printing paper—								
Standard news print.....lbs...free	319,373,537	10,525,007	349,334,185	11,233,152	2,212,364,740	73,155,023	2,417,684,594	78,803,710
Imported from—								
Finland .....lbs.	4,441,501	123,839	5,050,211	131,183	36,875,376	1,048,222	41,263,681	1,087,208
Germany .....lbs.	468,124	13,041	1,471,361	42,397	8,040,210	257,965	9,889,718	271,032
Norway .....lbs.	4,119,617	108,454	1,331,181	33,219	21,303,910	575,843	9,974,744	257,839
Sweden .....lbs.	10,828,819	309,233	9,768,150	254,626	81,243,570	2,348,773	58,790,149	1,577,185
Canada .....lbs.	282,550,199	9,427,761	299,736,101	9,778,479	2,004,342,657	66,930,847	2,206,448,604	72,749,658
Newfoundland and Labrador.....lbs.	16,857,414	539,275	31,959,612	992,710	59,784,542	1,969,839	90,654,197	2,841,511
Other countries .....lbs.	107,863	3,404	17,569	538	774,475	23,534	663,501	19,277
All other, n. e. s.....lbs...dut.	760,753	39,730	710,466	31,349	5,936,547	298,974	4,678,148	219,159
Grease-proof and waterproof paper...lbs...dut.	69,017	11,797	147,935	18,299	1,022,519	168,238	694,376	128,942
Kraft wrapping paper .....lbs...dut.	1,025,319	43,415	850,831	36,063	5,742,822	250,682	4,018,820	171,313
All other wrapping paper .....lbs...dut.	250,296	12,113	1,261,416	30,223	2,424,088	124,720	10,322,864	221,765
Writing, letter, drawing, etc., papers.lbs...dut.	558,731	156,597	286,963	78,828	2,001,870	499,403	1,714,280	434,940
Surface coated paper .....lbs...dut.	233,324	94,404	215,658	111,312	1,334,065	530,960	1,319,246	637,217
Tissue, copying, etc., paper.....lbs...dut.	281,948	141,748	244,380	162,176	1,817,481	1,020,995	1,772,187	1,122,766
Paper boards, n. e. s.—								
Pulp boards in rolls .....lbs...dut.	4,828,257	110,900	2,766,867	59,046	36,239,598	874,858	32,681,097	719,648
Paper boards, pulp board, and card-board .....lbs...dut.			1,323,704	23,290			12,114,274	264,587
Leather board, test, and wall board.lbs...dut.	4,128,201	84,738	10,541	752	.....	570,327	556,946	15,506
Cigarette paper, cigarette books, and covers .....lbs...dut.	1,252,808	353,697	826,417	218,981	9,441,171	2,840,622	6,838,107	1,854,257
Hanging paper (wall paper).....lbs...dut.	84,523	37,586	88,410	44,171	1,596,018	402,198	1,369,516	421,397
Duplex decalcomania, not printed....lbs...free	68,210	16,694	100,660	18,487	444,020	99,657	442,298	98,410
Paper boxes .....lbs...dut.	203,830	95,153	294,727	177,322	1,372,502	754,766	1,636,322	1,045,595
Pulp or papier-mâché and manufactures, n. e. s.....lbs...dut.	.....	28,483	.....	28,036	.....	209,986	.....	260,092
All other paper and manufactures.....dut.	.....	315,106	.....	377,890	.....	1,868,774	.....	2,175,027

WOOD PULP

Mechanically ground wood pulp.....tons..free	11,914	348,227	12,994	309,428	110,839	3,228,798	124,402	3,039,341
Sulphite wood pulp .....tons	82,325	5,165,711	79,367	4,678,804	509,518	33,123,783	519,022	30,466,098
Unbleached .....tons..free	52,841	2,944,782	55,147	2,877,074	323,679	18,564,943	349,276	17,655,318
Bleached .....tons..free	29,484	2,220,929	24,220	1,801,730	185,839	14,558,840	169,746	12,810,780
Imported from—								
Finland .....tons	4,413	222,372	6,400	349,763	46,540	2,476,007	55,841	2,407,194
Germany .....tons	2,937	209,239	5,943	351,034	33,323	2,388,314	34,583	2,259,794
Norway .....tons	6,548	460,690	3,110	226,288	40,807	3,074,545	36,775	2,461,519
Sweden .....tons	36,938	2,200,510	31,696	1,738,843	169,916	10,468,798	161,135	8,806,627
Canada .....tons	28,701	1,903,074	28,398	1,788,150	197,258	13,352,726	207,646	13,240,291
Other countries .....tons	2,788	169,826	3,820	224,726	21,674	1,363,393	23,042	1,290,673
Sulphate wood pulp, unbleached (Kraft pulp) .....tons..free	22,303	1,383,202	35,497	1,996,302	168,302	10,599,561	183,732	10,299,657
Imported from—								
Finland	1,714	89,430	1,539	78,485	6,733	363,665	17,270	730,818
Norway	1,518	80,171	1,078	61,919	6,067	353,416	8,077	423,798
Sweden	9,332	577,479	19,737	1,033,950	79,564	4,905,885	76,371	4,004,255
Canada	9,739	636,122	12,437	793,306	75,186	4,927,479	79,575	5,032,166
Other countries	.....	.....	706	28,642	752	49,116	2,439	108,620
Sulphate wood pulp, bleached.....tons..free	492	29,164	1,127	62,425	8,307	550,312	6,761	410,657
Other pulp .....tons..free	28	8,731	632	32,153	991	94,844	3,163	216,572

CRUDE PAPER STOCK

Rags for paper stock.....lbs...free	34,570,788	622,346	39,354,943	694,786	220,233,105	4,606,682	249,552,745	4,601,961
Waste bagging, waste paper, etc.....lbs...free	7,795,998	108,223	14,920,490	171,756	51,602,599	706,045	87,851,815	1,218,829
Old rope and all other paper stock...lbs...free	10,545,801	171,407	4,383,654	148,993	38,563,270	1,134,404	35,715,600	1,035,382

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

Colors, dyes, stains, color acids, and color bases, n. e. s.....lbs...dut.	278,102	302,401	499,154	541,249	3,465,549	3,852,344	3,571,308	3,863,133
Imported from—								
Belgium .....lbs.	7,406	7,463	5,657	6,307	116,871	167,182	77,244	83,641
France .....lbs.	10,908	14,310	2,591	3,577	111,974	130,752	45,983	57,551
Germany .....lbs.	142,890	136,829	356,679	385,250	2,172,361	2,267,205	2,355,159	2,415,731
Italy .....lbs.	1,323	1,846	1,540	1,540	60,180	70,635	46,241	42,904
Switzerland .....lbs.	96,030	128,478	111,459	121,275	844,859	1,061,704	872,668	1,062,160
United Kingdom .....lbs.	8,143	9,032	14,333	10,658	102,934	99,670	72,369	65,168
Other countries .....lbs.	11,402	4,443	6,895	12,642	56,370	55,196	101,644	135,978
Casein or lactarene.....lbs...dut.	2,176,208	317,459	2,635,410	330,288	17,946,193	2,235,182	18,416,175	2,417,872
Kaolin, china, and paper clay.....tons..dut.	28,276	278,134	27,809	282,289	178,112	1,749,195	162,296	1,698,045

(*Continued on page 52*)

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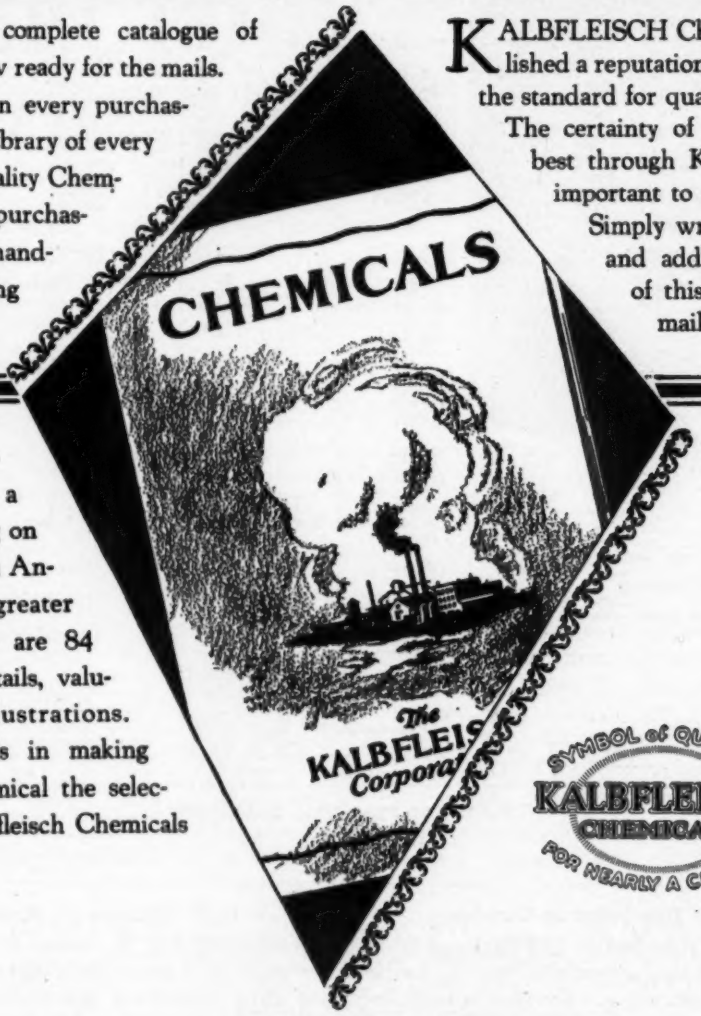

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PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 50*)

EXPORTS—PAPER

	July 1927 Quantity	July 1927 Value	July 1928 Quantity	July 1928 Value	Seven Months Ending July 31 1927 Quantity	Seven Months Ending July 31 1927 Value	Seven Months Ending July 31 1928 Quantity	Seven Months Ending July 31 1928 Value
Paper and manufactures (total)	.....	$2,200,290	.....	$2,519,856	.....	$16,069,199	.....	$17,794,951
Printing paper—								
News print paper ..... lbs.	1,966,603	92,691	2,481,461	96,605	16,741,433	792,942	12,955,988	497,074
Canada ..... lbs.	179,911	11,225	91,211	5,778	1,941,744	124,137	226,009	10,617
Central America ..... lbs.	27,088	1,149	104,709	3,710	371,366	18,127	646,153	22,981
Cuba ..... lbs.	442,122	17,587	296,893	11,975	3,291,778	150,910	2,559,749	93,726
South America ..... lbs.	517,434	21,943	945,212	34,990	4,250,615	185,360	3,357,248	124,849
China, Hong Kong, and Kwantung.. lbs.	16,911	1,265	571,248	21,968	331,824	20,029	786,951	30,516
Philippine Islands ..... lbs.	560,391	24,885	377,380	14,661	5,068,943	205,654	4,738,204	189,721
Other countries ..... lbs.	222,746	14,637	94,808	3,523	1,485,163	88,725	641,674	24,664
Book paper, not coated ..... lbs.	1,694,369	139,507	2,046,978	146,168	9,562,714	821,841	14,213,446	1,045,812
Europe ..... lbs.	184,226	17,642	28,823	2,738	887,037	80,620	326,104	32,269
Canada ..... lbs.	330,307	24,969	939,685	55,700	2,392,771	191,155	5,678,338	338,710
Mexico ..... lbs.	52,542	5,310	45,361	5,837	290,831	32,196	303,655	37,150
Cuba ..... lbs.	322,998	25,842	422,695	28,015	1,324,601	113,416	2,895,344	212,173
Argentina ..... lbs.	211,193	17,029	89,643	7,052	666,625	52,887	390,134	36,520
Other South America ..... lbs.	68,227	11,013	122,304	8,737	1,157,289	91,696	740,611	62,771
China, Hong Kong, and Kwantung.. lbs.	.....	.....	68,404	10,131	344,277	36,494	1,040,402	90,749
Philippine Islands ..... lbs.	409,064	26,350	174,778	12,024	1,275,081	98,359	1,300,070	89,062
Australia ..... lbs.	36,607	3,481	42,364	4,373	553,937	58,603	515,487	59,866
Other countries ..... lbs.	49,205	7,871	112,921	11,561	670,265	66,415	1,023,301	86,542
Cover paper ..... lbs.	146,599	25,921	157,324	25,827	928,741	163,698	1,256,477	208,253
Greaseproof and waterproof paper..... lbs.	373,959	51,424	467,536	57,052	1,666,218	234,705	1,954,384	284,178
Wrapping paper ..... lbs.	1,258,010	166,593	3,099,773	225,398	18,168,606	1,309,743	20,885,230	1,514,210
Surface-coated paper ..... lbs.	430,266	58,039	764,814	82,382	4,047,721	501,737	5,203,965	594,143
Tissue and crêpe paper ..... lbs.	661,690	109,861	410,914	94,252	2,703,215	583,538	3,188,400	668,025
Toilet paper ..... lbs.	378,705	49,686	683,391	69,821	2,999,489	383,290	3,443,120	379,196
Paper towels and napkins ..... lbs.	252,453	37,913	284,546	37,321	1,386,630	189,401	1,601,661	205,900
Box board ..... lbs.	2,809,882	85,771	4,600,669	128,516	27,363,108	843,071	29,930,760	853,089
Bristols and bristol board ..... lbs.	226,139	16,374	114,888	14,722	1,317,571	113,098	1,102,260	122,206
Other paper board and straw board..... lbs.	3,176,999	135,494	3,698,473	175,105	25,591,586	1,397,479	23,183,755	1,147,961
Sheathing and building paper..... lbs.	1,244,587	39,225	1,447,047	53,778	7,879,608	310,903	7,812,062	292,680
Wall board of paper or pulp..... sq. ft.	4,859,222	155,910	4,514,374	160,336	28,914,395	951,817	30,421,446	1,022,440
Blotting paper ..... lbs.	347,699	38,249	318,466	34,539	2,042,821	232,598	2,415,823	273,562
Filing folders, index cards, and other office forms ..... lbs.	82,337	29,086	121,223	40,529	645,804	179,954	896,124	306,026
Papeteries (fancy writing paper)..... lbs.	60,852	17,170	70,387	19,661	372,243	95,535	417,895	97,289
Other writing paper ..... lbs.	996,794	136,944	1,828,259	201,642	6,869,746	1,068,056	13,813,325	1,603,763
Paper hangings (wall paper) ..... yds.	1,221,062	31,241	1,320,364	25,187	16,570,610	372,678	22,172,721	417,878
Paper bags ..... lbs.	917,792	70,881	935,575	72,429	7,421,699	628,763	5,214,151	468,642
Boxes and cartons ..... lbs.	2,138,563	140,104	2,080,006	148,860	13,538,444	904,320	15,092,071	1,008,081
Envelopes ..... lbs.	225,060	34,570	200,951	34,827	1,535,349	260,831	1,434,378	239,638
Vulcanized fiber sheets, strips, rods, and tubes ..... lbs.	330,397	100,759	541,815	136,630	2,681,182	808,036	3,215,277	858,450
Manufactures of vulcanized and indurated fiber ..... lbs.	31,379	12,243	41,922	11,749	310,928	88,647	435,232	107,507
Cash register and adding machine paper... lbs.	197,285	18,354	324,457	33,493	1,030,997	109,247	1,630,305	174,214
Other paper and paper products.....	.....	406,280	.....	393,027	.....	2,723,271	.....	3,404,734

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ..... tons	1,708	87,815	2,028	110,846	10,988	661,643	12,091	687,625
Soda wood pulp ..... tons	270	24,406	50	3,697	1,388	122,731	1,279	96,318
Other wood pulp ..... tons	2	188	547	32,366	1,851	68,164	1,743	102,086
Rags and other paper stock..... lbs.	14,429,967	200,550	21,034,750	467,973	129,051,411	2,010,522	140,990,284	2,787,706

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery..... lbs.	883,682	178,572	1,036,954	227,526	12,202,753	2,421,982	10,029,418	1,931,084

Building Paper Bag Plant at Camden

At Camden, Arkansas, the International Paper Company is constructing a plant which will have a capacity of over one hundred million multi-wall cement bags a year. The plant is being built in conjunction with the kraft paper mill at that point recently completed by the company, and will use over thirty thousand tons of kraft paper a year in the manufacture of bags.

The bag plant will be operated by the George & Sherrard Paper Company, a subsidiary of International Paper Company, which owns a license to make multi-wall valve cement bags under the Bates' patents. At Wellsburg, West Virginia, George & Sherrard Paper Company now has a plant manufacturing rope paper, which is converted at the plant into bags for the flour, cement, plaster and fertilizer industries. The Wellsburg mill also converts kraft paper into bags for the cement and allied industries.

G. S. Witham Jr. Removes to Lincoln

HUDSON FALLS, N. Y., October 1, 1928.—George S. Witham Jr., for many years general plant superintendent of the Union Bag and Paper Corporation and who recently accepted a position as superintendent of the Lincoln, N. H. mill of the Parker-Young Company, will take up his residence in Lincoln having disposed of his home in Hudson Falls. Mr. Witham, who is widely known as an inventor of paper mill machinery, has already taken charge of the mill at Lincoln. He was associated for many years with father, George S. Witham Sr., general manager of the Union Bag and Paper Corporation. He resigned as general superintendent about a year ago and for a brief period thereafter was with the Stevens & Thompson Paper Company at the Midale Falls Mill. Mr. Witham, while a resident of Hudson Falls, was prominently indentified with village affairs.

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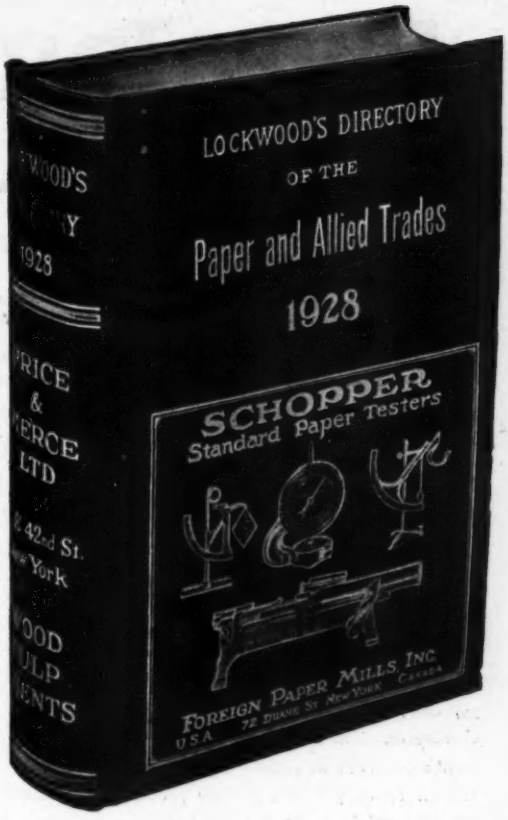

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PAPER TRADE JOURNAL
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FOREIGN TRADE IN PAPER

Exports of paper and paper products from the United States during July were about 10 per cent under the June exports in value but at the same time exceeded those of July, 1927, by 15 per cent, according to the Paper Division of the Department of Commerce. The heaviest decreases compared with the preceding month occurred in shipments of book and writing papers, which fell off by 30 per cent and 20 per cent, respectively, boxes and cartons, which declined 12 per cent, and shipments of various papers and paper manufactures classified under the term "other paper and paper products," which decreased by 45 per cent.

Exports of news print, wrapping paper, and most classes of boards, on the other hand, were larger than during either of the other two months under discussion. Gains registered in these various items compared with the July, 1927, shipments ranged from 44 per cent in the case of news print to 60 per cent for boxboards and 146 per cent for wrapping paper. News print shipments show a like increase in comparison with the preceding month, while in boxboard exports there was a gain of only 10, and in wrapping papers of 20 per cent. Exports of writing papers, another important item on the paper schedule, while showing a decrease of 20 per cent in comparison with the preceding month were about 100 per cent above those of July, 1927. Exports of bags show a slight increase and those of boxes and cartons a slight decrease compared with either of the two previous months mentioned.

The total exports of paper and paper products during July, 1928, were valued at $2,519,856 as compared with $2,825,946 during June, and $2,200,290 during July, 1927. In addition $617,563 worth of paper base stocks were exported during the month in question, nearly 20 per cent of which consisted of 2,028 tons of sulphite pulp. Rags and paper stock other than wood pulp comprised most of the remainder. Similar shipments during the corresponding month in 1927 were valued at $331,517.

Imports of paper and paper products during July exceeded those of either the preceding month or July, 1927, by 5 per cent. Receipts of news print, which represent aproximately 90 per cent of the incoming shipments in this line, show no tendency to decrease, July consignments of 155,507 tons exceeding those of the preceding month by 5 per cent and of the corresponding month in 1927 by 7 per cent. Imports of other classes of paper and board valued at $1,416,225, as compared with $11,233,152 for news print, show a slight increase in value compared with June but fell below July, 1927, receipts by 8 per cent. The largest declines were registered in imports of pulpboards in rolls, other pulpboard, paperboard, and cardboard, and cigarette paper. Receipts of kraft wrapping paper, writing papers, surface-coated paper, and tissues were also less than during the corresponding month last year.

Imports of paper base stocks on the whole were greater during July than during either of the previous months mentioned. Compared with June there was a decline in the volume of ground wood and also of old waste, bagging, rope and similar stock. Receipts of pulp wood, however, were heavier as well as of sulphate pulp, which tended to offset the decreases enumerated, while imports of rags and of sulphite pulp were on about a level with the preceding month. Total imports in this group during July were valued at $10,367,495 as against $9,356,412 during June, and $9,945,498 during July, 1927.

POWER AND THE PAPER INDUSTRY

The use of power in the paper industry has in the past twenty-five years increased 250 per cent and today this industry stands fourth in the use of power in America industries. For this reason the influence of the Seventh National Exposition of Power and Mechanical Engineering is of the greatest importance to all paper manufacturers as a field where the latest developments in equipment can be seen and comparisons effected. Because it is estimated that a ton of coal is required to manufacture a ton of finished paper, the paper industry is very much alive to the possibilities of increasing efficiency and cutting down waste in connection with the application of power.

The National Power Show exhibits the most modern power plant equipment—transmission lubrication, instruments of precision, machine tools, heating and ventilating equipment and safety appliances. All of these sections stand for increased efficiency, waste reduction and designers and exhibitors of these products are prepared to discuss the individual problems with the engineers and executives of the paper industry.

Today the modern power plant equipped with high pressure boilers automatically fired, condensers, feed water heaters, regulators, recorders and various instruments of precision which furnish power for operating the plants, must be carefully considered. The waste of the power developed places an excess load on the power plant as well as decreasing its efficiency and raises the production cost of the finished product..

This year the Seventh National Exposition of Power and Mechanical Engineering will carry a number of new exhibits of direct importance to the paper industry, among them being a new appliance for steam control either by reducing, transferring or directing the flow. There will be valves which will show the operation controlled from a remote position. Another exhibit of equal importance will show an enclosed spur gear, worm gear and herringbone gear speed reducer. Of particular interest will be the exhibit of a manufacturer of variable speed transmission showing a mechanical unit which, when receiving power at a constant speed, is capable of delivering an accurate and infinite

variety of speeds from zero to full speed in either direction. The entire range is covered without jerks or stops in either direction. These units are manufactured in sixteen different sizes for capacities from 1 hp. to 150 hp.

Among the interesting lubricator exhibits will be safety systems of manual type, spring automatic type and pneumatic types. These products will be of interest to executives and engineers who plan to visit the National Power Show at Grand Central Palace, December 3 to 8, 1928 and are only a few of the exhibits which occupy more than three floors demonstrating the relationship between the paper industry and the Seventh National Exposition of Power and Mechanical Engineering.

Commercial Attache at Oslo Appointed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 3, 1928.—The appointment of Marquard Henry Lund, of Middletown, Ohio, as commercial attache at Oslo, Norway, was announced today by Dr. Julius Klein, Director, Bureau of Foreign and Domestic Commerce. Mr. Lund will be in charge of the new office of the Commerce Department which will be opened in November in the Norwegian capital.

Mr. Lund was born in Germany, where he received his early education. After leaving high school he served an apprenticeship for three and a half years with a large wholesale house in Flensburg, Germany, learning the practical as well as the theoretical side of the business in every phase. In the evening he attended the University of Hamburg.

The new Commerce Department foreign representative came to the United States in 1910, was employed on a farm for fourteen months, then went to business college in Cedar Rapids, Iowa. After this he was connected with different firms, until 1915 when he joined a company engaged in the making of roofing and building papers. In 1917 he became advertising manager for a firm of wholesale paper merchants, remaining with it until 1921 when he was made sales manager by another company in Middletown, Ohio, with which he has been connected until his present appointment. While with the last firm Mr. Lund made a trip through Europe in its interests, visiting Germany, Belgium and Holland.

In view of Mr. Lund's long experience in the paper industry and the fact that a number of the European countries are producers of raw materials used in the industry here, large quantities of which are imported annually, his duties will include the coordination of the Bureau's activities abroad having to do with pulp and paper. He will visit the producing centers periodically, arranging with the Bureau's various offices abroad to supply him with current information as to developments in the industry in the various countries. He will also attempt to arrange an interchange of statistics between the various trade associations in Europe and those in the United States with a view toward bringing about a complete statistical picture of the industry, world-wide in scope. This should benefit the industry both here and abroad in that it would place it in a position where it will be better able to visualize the problems confronting it and should assist materially in meeting these problems.

Swedish Pulp Prices Slightly Lower

WASHINGTON, D. C., October 3, 1928.—Despite the apparently favorable situation in the Swedish pulp markets, prices to European buyers showed a slight weakness in July according to Consul General John B. Osborne, at Stockholm. Quotations to American buyers held steady at $3.65 to $4.00 for bleached sulphite, and at $2.90 to $2.75 for the best grades of easy bleaching and strong sulphite. The minimum prices for the latter two grades show a decrease of 5 cents and 2½ cents, respectively, per 100 pounds, while strong sulphate, quoted at $2.55 to $2.65, shows a decrease of 5 cents for both minimum and maximum prices.

Canadian Paper Exports Increase

According to the report issued by the Canadian Pulp and Paper Association, the exports of wood pulp and paper from Canada in August were valued at $15,563,475. This was an increase of $441,313 over the July total but was smaller by $150,808 than the total for August, 1927.

Wood pulp exports in August were valued at $3,618,205 and exports of paper at $11,945,270 as compared with $3,896,754 and $11,225,408, respectively, in July.

Details for the various grades of pulp and paper are as follows:

	August, 1928		August, 1927	
PULP:	Tons	$	Tons	$
Mechanical	17,834	500,216	30,414	1,002,863
Sulphite Bleached	18,915	1,519,578	20,346	1,576,627
Sulphite Unbleached	17,252	840,455	18,706	1,001,636
Sulphate	12,000	698,351	14,072	852,181
Screenings	2,913	59,605	2,030	36,590
	68,914	3,618,205	85,568	4,469,897
PAPER:				
News Print	179,334	11,473,052	163,115	10,675,536
Wrapping	1,342	146,730	1,128	129,623
Book (cwts.)	7,260	56,135	10,315	62,161
Writing (cwts.)	642	5,021	1,415	10,422
All Other	.....	264,332	.....	366,644
		11,945,270		11,244,386

Exports of wood pulp and paper for the first eight months of the current year were valued at $124,789,718 as compared with a total of $114,397,774 for the first eight months of 1927, an increase this year of $9,391,944.

The increase is due to the larger shipments of paper which for this year were valued at $94,934,879 as compared with $83,140,782 in the eight months of 1927. Wood pulp exports were lower in value, the total for the eight months being $29,854,839 as against $31,256,992 in the corresponding months of 1927.

Quantities and values for the eight months were:

	Eight Mos., 1928		Eight Mos., 1927	
PULP:	Tons	$	Tons	$
Mechanical	121,761	3,327,596	165,002	5,016,290
Sulphite Bleached	166,335	12,589,714	159,825	12,449,148
Sulphite Unbleached	142,648	7,173,701	129,019	7,022,762
Sulphate	107,544	6,357,832	109,098	6,602,493
Screenings	19,990	405,996	8,737*	166,299*
	558,278	29,854,839	571,681	31,256,992
PAPER:				
News Print	1,412,170	90,942,977	1,204,557	78,855,987
Wrapping	10,713	1,173,549	10,012	1,134,749
Book (cwts.)	43,503	358,956	68,720	465,387
Writing (cwts.)	3,467	31,988	10,085	81,425
All Other	.....	2,427,409	.....	2,603,234
		94,934,879		83,140,782

* Five months only.

Pulp wood exports in the eight months this year amounted to 1,110,327 cords valued at $10,772,138, which was smaller than the quantity exported in the eight months of last year, when the total was 1,219,404 cords valued at $12,213,614.

Specifications for Straw Paper

The following is the new standard weight on straw paper, adopted September 19,1928, by the .009 Straw Paper Manufacturers:—

STANDARD SPECIFICATIONS

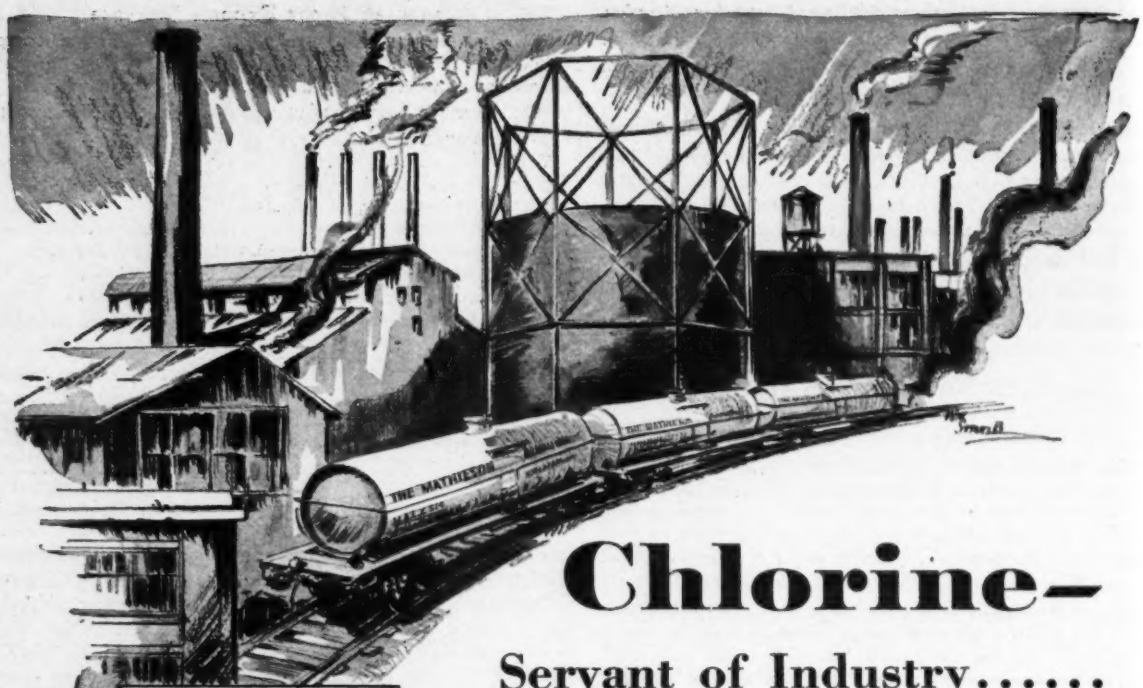
FOR STRAW PAPER FOR CORRUGATING PURPOSES

Stock is to be manufactured .009 in thickness, to have an average weight of 36 lbs. per M. sq. ft., the percentage of moisture is to be not less than 8 per cent and not more than 10 per cent.

New Pulp Mill to Start in Russia

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 3, 1928.—According to unofficial reports received here the new pulp mill at Syassk in Soviet Russia will commence operations this month. The plant was expected to be in operation in March of this year but there has been some delay in assembling the new power plant. The output of the mill is scheduled at 35,000 tons of pulp in 1928-1929; 55,000 tons in 1929-1930, and 65,000 tons in 1930-1931. In addition, 4,500 tons of wrapping paper will be produced annually. The plant is to be run in three shifts of 7 hours each.



Chlorine–

Servant of Industry..... Guardian of Public Health

WITHIN recent years, Liquid Chlorine has quickly developed into a servant of broad usefulness to both industry and the general public.

Today, Chlorine is widely used in sterilizing municipal water supplies, in disinfecting sewage and in eliminating noxious sewage odors and gases from industrial wastes.

Industry finds constantly increasing uses for Chlorine in its various forms. It is an indispensable basic ingredient in the manufacture of many valuable chemical products. Each year thousands of tons of Liquid Chlorine are used by the paper and textile industries for bleaching purposes. In petroleum refining and in flour milling, Chlorine plays an important part in manufacturing and processing. Because of its powerful germicidal properties, Chlorine is also widely employed in compounding disinfecting and sterilizing agents, both for industrial and household uses.

To widen the field of usefulness for Chlorine and Chlorine products has been Mathieson's purpose since the earliest stages of the industry, Mathieson was first to introduce and use the multiple-unit tank car and to perfect safe methods for handling Liquid Chlorine. Today Mathieson stands at the forefront in the development of this product of untold uses—a product that despite its recent amazing growth is at the threshold of an era of still greater development.

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

By Clarence J. West, Chairman

Chemical Wood Pulp from Poplar and from Deciduous Woods in General. M. Brot. Papier 31, 399-402 (Apr. 1928). From a general discussion of the question the author considers that poplar and similar species can give bleached sulphite, and particularly bleached soda, pulps which can be used to advantage, in admixture with stronger pulps, in the manufacture of fine papers; esparto and straw pulps prepared either by the soda process, the chlorine hydrate process or the neutral sulphite process, are suitable as substitutes for chemical poplar pulp; in order to be economically successful, the manufacture of chemical poplar pulp must have a supply of wood at approximately one-third the cost of that of spruce or fir (weight for weight); proper alkali recovery is essential to the successful operation of the soda process; poplar soda or sulphite pulp cannot be economically used for the manufacture of viscose rayon or for nitration purposes.—A. P.-C.

Paper Deinking Process. Louis Grenaudier. Addition No. 32,789 to Fr. pat. 623,670. The original patent provides for the treatment of waste printed paper with a dilute sodium carbonate solution (not over 1 in 800) and skimming off the scum. The present addition provides means for formation of the scum either by addition of metallic salts which react with the soluble soap formed between the alkali and the vehicle of the ink to give an insoluble soap, or by addition of an acid which precipitates out the fatty acids from the soluble soap. Production of the scum is further facilitated by agitation, either by boiling or by blowing air.—A. P.-C.

Plastics and a Process of Manufacture. F. J. Commin. Swed. Pat. 59,223. Binders in manufacturing plastics from cellulose can be uniformly distributed throughout the pulp by peptizing the solution with about 2 per cent casein or sodium resinate.—C. E. P.

Effect of Decay on the Chemical Composition of Wood. L. F. Hawley, L. C. Fleck and C. A. Richards. Ind. Eng. Chem. 20, 504-507 (May, 1928). The comparative effects of decay on the chemical composition of wood were studied by analyzing several species of wood before and after decay with both a white-rot and a brown-rot fungus, the analyses being confined largely to the cellulose, with determinations of pentosans in cellulose and of the hydrolysis number of the cellulose. In the decay of the sapwood of two hardwoods and two softwoods caused by one brown-rot and one white-rot fungus, the pentosans in cellulose were among the first constituents attacked and at all stages of decay they were removed more rapidly, in proportion to the amount present, than the hexosans in the cellulose. Both the stable and the readily hydrolyzed portions of the cellulose were always attacked, but in most cases there was a preferential attack on the readily hydrolyzed portion. Although all the white-rot fungi are supposed to attack the lignin preferentially, Polystictus hirsutus, a white rot, during the first stages of decay, is like the brown rots in its preferential attack on the cellulose. The two softwoods had a larger amount of stable cellulose than the hardwoods, while the two hardwoods had more pentosans in this stable cellulose than did the softwoods.—A. P.-C.

Furfural and Carbon Dioxide From Wood Before and After Chlorination. George J. Ritter and L. C. Fleck. Ind. Eng. Chem. 20, 371-373 (Apr., 1928). No furfural producing bodies are formed during the chlorination used for isolating cellulose from wood. During chlorination there is formed a considerable amount of material which yields carbon dioxide but which differs from oxycellulose in that it is soluble in sulphite and yields no furfural. Most of the carbon-dioxide-yielding material is formed during the first chlorination, when 56.6 per cent of the unstable pentosans are rendered soluble in sodium sulphite. Carbon dioxide equivalent to 0.86 per cent is liberated from the original wood by boiling hydrochloric acid. There is no danger of forming oxycellulose during the analytical procedure for determining cellulose by the chlorination method.—A. P.-C.

Researches on Wood Chemistry. III. Composition of Tsuga and Momi. Y. Ueda and T. Yoshida. J. Cellulose Inst. (Tokyo), 3, 297-298 (1928). Air dried samples of Japanese pulpwoods Tsuga (*Tsuga sieboldii*) and Momi (*Abies firma*) on analysis gave: cellulose 48.71, 45.24 per cent; lignin 21.53, 6.26 per cent; resins (benzene extract) 2.17, 2.26 per cent; and furfuraldehyde (as pentosans) 4.69, 6.26 per cent respectively. These woods bear a close similarity in composition to the Kabafuto spruce, but showed an exceptional difficulty in the chlorination process of analysis due to the strong affinity between the cellulose and the lignin in these woods; this has an important significance in the pulping process. Owing to their compact structure these woods, especially Tsuga, are suitable for pulping only by chemical processes.—A. P.-C.

Electrical Control in the Paper Industry*

By R. T. Kintzing[1]

Electrically driven machinery is nowhere more extensively used than in the paper industry. Paper mills rank high among the large users of electrical energy. In the table of motor applications mentioned later in this paper there are listed almost fifty different machines or applications in paper mills which are individually motor driven. It is hardly necessary to mention the advantages in power saving, flexibility of plant design, and other well known features obtained by such operation.

To a greater extent than in most industries, standard or general purpose motors are used. Squirrel cage A.C. motors are used when constant speed is needed while wound rotor type motors or direct current motors, are used for abjustable speed drives. Synchronous motors, too, are frequently employed when advantageous. Ordinarily, the choice of a suitable motor involves only the selection of one having the right horse power and speed characteristics.

It is not quite so easy to choose a suitable controller. This is true on account of the variety of functions which the controller must perform and because of the multitude of different types of controllers which are offered for sale. The purpose of the controller of course, is to get the motor started and to control its direction or speed as desired.

Operating Requirements of Motors

Paper mill machinery will require motors that must start and run in one direction, others that must be occasionally reversed, some that must be started several times or inched while preparing the machine for operation, and some which must change speed to suit the requirements of the work being done. For each of these purposes there may be several varieties of controllers which can be used. In general, controllers may be classified first as manual or magnetic; that is, they are operated entirely by the manual efforts of the operator, or are magnetically operated under control of push buttons, pressure switches, float switches or other automatic devices. Manual controllers are in many cases the cheapest in first cost, but they require some little amount of skill on the part of the operator when starting the motor. Magnetically operated controllers are often a better investment because the protective features necessary to assure safety to the motor are automatically taken care of without any particular skill on the part of the operator.

The next important distinguishing feature of a controller is whether it is designed for reversing or non reversing service. After this it is important to know whether the motor speed is constant or adjustable.

Squirrel Cage Motors

Squirrel cage motors are started by applying power to the primary connections. This power may be applied either at reduced line voltage or full line voltage. In the past most squirrel cage motors have been started by the former method but in modern practice many of them are thrown on the line at full voltage. The motors can be safely started in this manner and it is now commonly well known that the disturbance to the power line is not greatly increased. The user of such motors must first determine whether he is to start them by means of reduced voltage or full voltage. He then must make the choice of the type of switching apparatus. It may be an ordinary knife switch, a circuit breaker, a reduced voltage manual starter, a reduced voltage magnetic starter, or full voltage magnetic starter. The reduced voltage is ordinarily obtained through comparatively small and inexpensive auto-transformers. These transformers may or may not be built integral with the switching apparatus. Reduced voltage may sometimes be obtained by means of one or more steps of resistance or impedance in the primary circuit. There is not enough difference between the various methods of reduced voltage starting to be of any great concern. The choice should depend upon the starter which has been found by experience to be most durable and most readily accessible for repairs or inspection. The self-contained starter in which the transformer and switching apparatus are contained in the same enclosure, is ordinarily not obtainable for voltages higher than 2200 volts, or for sizes greater than about 200 hp. When motors larger than this are used it is necessary to use oil switches and separate auto-transformers. This type is useful when high current interrupting capacity is needed as a suitable circuit breaker can be chosen. Magnetic starters may be obtained in sizes which are adequate for any ordinary requirement using air break contactors for low voltage and oil immersed contactors for high voltage circuits.

In the case of the manual starter the time for changing from the reduced voltage to the full voltage connection is left to the judgment of the operator. With a magnetic starter, the tranfer is determined entirely by automatic devices in the starter itself. It has been found by long experience that an automatic time limit control of this feature is best for general purpose applications.

Overload Protection

All manufacturers of starting apparatus for squirrel cage motors provide their starters with overload and low voltage protection. Additional protective features, such as reverse phase relays, indicating equipment, etc., are special and should be purchased for mounting separate from the starter if the purchaser desires to obtain advantage of lower priced equipment. Since the advent of thermal overload relays, most starters on the market have been changed so as to include this type of overload protection. There is a great advantage in having overload relays which will not disconnect the motor upon the occurrence of a momentary overload unless this overload is continued long enough to raise the temperature of the motor to a dangerous degree. The National Electric Manufacturers' Association's standard of performance for thermal overload relays assures that relays meeting its requirements will afford overload protection to any standard squirrel cage motor proportional to the extent of the overload and will stop it before the motor is damaged by excessive temperature.

Starters

It is important when selecting starters to choose those which have thermal overload relays designed in the simplest possible manner and with the least number of intricate parts. This insures permanency of setting and reliability of operation. The low voltage protective feature disconnects the motor from the line when the voltage fails, so that it is not suddenly started at full voltage when the power returns. All of the manual starters, and most of the magnetic starters for squirrel cage motors now sold are of the enclosed type. The enclosures are usually ventilated but may be made dust-tight or water-tight, if desired. Provision is always made for conduit wiring. When individual ammeters for reading the load on the motor are desired, it is best to buy these for mounting separate from the starters, as standard starters are not so equipped and to make them so would increase their cost.

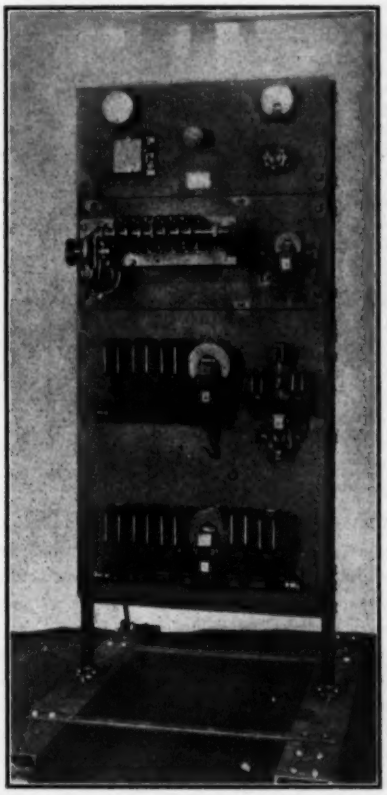
The advantage of push button operation in starting squirrel cage motors is emphasized strongly because the push button station can be located where the operator may watch the wachine while starting and the starter can be placed in a convenient location near the motor.

Wound Rotor Motors

Wound rotor motors, used in paper mills principally because they are of the adjustable speed type, are a little more complicated electrically than are squirrel cage motors. They have wind-

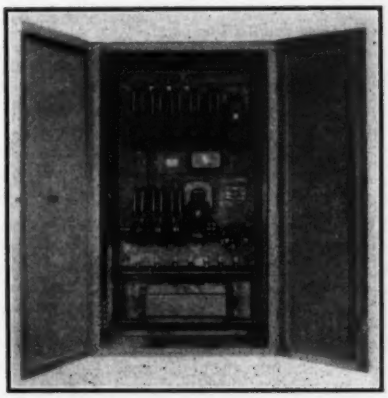
* Presented at Fall Meeting of TAPPI, Wausau, Wis., September 26, 1928.
[1] Control Engineer, Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

ings on both the stator and rotor, which require switching apparatus. Motors of this type are designed to have full voltage applied to the primary and to have an adjustable resistance in the secondary, or rotor circuit. The speed of the motor at any given torque load is inversely proportional to the amount of the resistance in the secondary circuit. This offers an easy method of controlling the speed, and also of controlling the starting current. The windings of a wound rotor motor act very much like a transformer. When full voltage is applied to the primary of the motor, a voltage is induced in the secondary bearing a relation to the primary voltage proportional to the ratio of turns in the primary and secondary windings. When the motor is standing still the secondary voltage is highest. Resistance may be designed to limit the secondary current or the corresponding primary current to any desired value. When the motor begins to turn, the secondary voltage appearing at the slip ring decreases and it is necessary

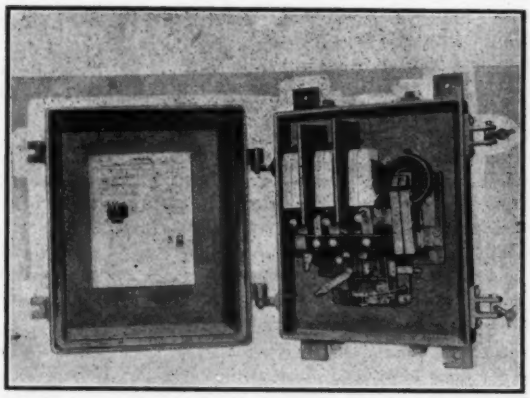


MAGNETIC REDUCED VOLTAGE SYNCHRONOUS MOTOR STARTER

to reduce the amount of resistance by successively short circuiting its several steps in order to accelerate the motor. If all or part of the secondary resistance is left in the circuit, the motor will run at less than its full speed with a correspondingly reduced efficiency as some of the power is used electrically in producing heat in the secondary resistor. Switching equipment for the two motor windings is necessarily more expensive than that for the single winding squirrel cage motor. For this reason, magnetic starters are not often used for wound rotor motors unless the motor must start very frequently and the additional durability of the magnetic controller parts is necessary. There are no such applications in a paper mill. Controllers for such motors are usually therefore, of the drum type, manually operated. The drum controller sometimes contains switching equipment for both the primary and secondary of the motor, but more often has secondary switches only. In this case, the primary switching device is separate and interlocked in some manner with the secondary drum for either manual or magnetic operation. For high voltage motors, a desirable arrangement is an oil circuit breaker having a magnetic lockout interlocked with the position of the drum controller handle so that the circuit breaker cannot be closed unless the drum is turned to the "off" position. For low voltage motors, a magnetic line contactor is preferred, interlocked so that it can be closed when the secondary drum is in the "off" position. The overload and low voltage protective features cannot easily be incorporated in a manually operated drum switch. These are usually made a part of the primary switching equipment. Thermal overloads are desirable and magnetic primary contactors lend themselves most readily to provision for automatic protection. A greater variety of controller combinations is possible for wound



NON-REVERSING MAGNETIC REDUCED VOLTAGE STARTER HAVING TIME LIMIT ACCELERATION FOR SQUIRREL CAGE MOTORS



25 HP. NON-REVERSING MAGNETIC FULL VOLTAGE "LINE STARTER" FOR SQUIRREL CAGE MOTORS

rotor motors than for squirrel cage motors, but many of these combinations are not used in the paper industry.

Synchronous Motors for Grinders and Jordans

Large synchronous A.C. motors have long been used for grinders and Jordans. Lower first cost in the case of large motors and their power factor corrective features have been the reasons for their use on these applications. In recent years the development of automatic starters for synchronous motors has led to their use in smaller sizes and for other applications. The use of a direct current field winding, in addition to the alternating current stator windings, makes the motor more complicated than either the squirrel cage or wound rotor types. When manual starting is used more skill and judgment is necessary on the part of the operator. For this reason, synchronous motors had limited application until automatic starters made it easy for the most inex-

perienced operator to start them. Synchronous motors have a squirrel cage starting winding and starting characteristics very much like those of the squirrel cage motor. They are started by applying either reduced or full voltage to the primary. For high speed motors, reduced voltage starting is required to limit the amount of in-rush current. Slow speed motors on the other hand will not develop a high percentage of starting torque unless they are started at full voltage. It is quite necessary to apply the direct current field of the motor at the right time. If this is not done, the motor will not synchronize or pull into step. It is this feature which has made it hard for operators to understand how to properly start a synchronous motor.

The automatic starter utilizes some of the characteristics of the motor to determine the time for applying the field. When the starting voltage is applied to the primary, a voltage is induced in the direct current field winding which bears a definite relation to the primary voltage and frequency. As the motor begins to turn over and accelerate, the frequency of the voltage induced in the field winding will decrease as the speed increases. When the motor approaches synchronism, the frequency of this induced voltage becomes very small and is used to control relays to apply the field. There will be less disturbance of the power system if the field is applied before full voltage is connected to the motor windings, but as the starting torque is better at full voltage, the usual practice is to start at reduced voltage, transfer to full voltage, and then apply the field.

Standard automatic synchronous motor controllers offer overload and low voltage protection. In addition, they are often provided with ammeters for reading the A.C. and D.C. current, and with power factor meters optional. The functions of the overload relay are more numerous than is the case with the squirrel cage motor. It is necessary to protect the motor against loss of either alternating or direct current power and against failure of the field, as well as an overloaded condition. The thermal overload relay gives protection against all of these conditions. Loss of the direct current field excitation or single phase operation of the primary will increase the primary current to such an extent as to ultimately trip the thermal overload relay and disconnect the motor from the line before damage is done. When magnet reduced voltage starters are used, the time of tranfer from reduced to full voltage is best regulated by means of a time limit device. Standard starters offer this form of operation. Standard synchronous motor starters include a field rheostat either for a separate exciter or for the field of the synchronous motors. In paper mill application, the field excitation is usually supplied from a bus and the rheostat is used directly in the motor field circuit. This rheostat is operated to adjust the power factor of the motor.

Synchronous motor starters are obtainable in several forms, some of which have been previously mentioned. It is possible to purchase semi-magnetic reduced voltage starters in which the switching equipment for the reduced and full voltage is manually operated and the field application is controlled automatically by means of field frequency relays. This is a somewhat cheaper form of control than the full magnetic and relieves the operator of the necessity for knowing exactly when to close the field circuit. Magnetic contactors are available in sizes large enough for any ordinary horsepower or voltage rating, except the very large motors used on grinders. Grinders are usually under the supervision of competent operators and very often manual starting is employed. Although the switches may be electrically operated oil circuit breakers.

Manufacturers of motor control have been active in applying the latest scientific principles in the design of their apparatus. A study of arc rupturing problems and the consequent development of commercial appartus based on the principles evolved has resulted in many improved forms of control apparatus. Notable among these are the small line starters now used for squirrel cage motors.

CONTROLLER APPLICATION TABLE

Application	H.P. size of motor	AC squirrel cage	AC wound rotor	AC synchronous	Direct current	Non rev. start	Reversing start	Inch or jog start	Speed control	Special control
Agitators	5-25	•	•			•				
Barkers—knife type	5-25	•	•			•				
Barkers—drum type	150	•				•				
Beaters	50-200	•	•	•		•	•			
Belt shifters	¼-½	•					•	•		
Belt tighteners	5-15	•			•					
Broke conveyors	1-1½	•				•				
Calenders	60-150	•	•		•					•
Calender lift	5-15	•			•		•			
Carpenter shop		•				•				
Chippers	75-125	•	•			•				
Conveyors		•								
Couch lift	3	•			•		•			
Cutters	5-20		•		•					•
Deckers	5-25	•			•	•				
Deckle lift	1-1½	•			•		•			
Fans			•		•				•	
Felt tighteners	1-3	•			•		•			
Fourdrinier lift	5-15	•			•		•			
Fourdrinier remover	1				•		•			
Fourdrinier shake	1-5				•				•	
Grinders	500-2500	•		•		•				
Jordans	50-350	•		•		•	•			
Line shaft drives		•				•				
Machine shop		•				•				
Paper machines—single motor	50-800				•					•
Paper machines—sectional drive	100-750KW				•					•
Platers			•		•					•
Pumps—plunger	5-25	•				•				
Pumps—centrifugal	5-150	•		•		•				
Pumps—vacuum	25-200	•		•		•				
Rectifier roll	1-3	•				•				
Reel revolving	3	•					•			
Roll grinders	20-35				•					•
Rod mills	15-175	•	•			•	•			
Screens—chip	5-20	•				•				
Screens—stock—flat	5-75	•				•				
Screens—stock—rotary		•		•		•				
Screens—stock—centrifugal		•				•				
Slitters	3-5	•				•				•
Suction boxes	1-3	•				•				
Winders	15-100	•	•		•					•

A comparison of the performance of present day starters with that of older starters illustrates very forcibly the improvement which can be obtained by utilizing modern scientific research.

The Electrical industry like many others, undesrtands the benefit to be derived from standardization of its apparatus. To this end many contributions have been offered in the form of rules and specifications adopted by various governing bodies, such as the American Institute of Electrical Engineers, American Engineering Standards Committee, Electrical Testing Laboratories of the National Fire Protective Association and the National Electric Manufacturer's Association. Committees appointed by these several bodies have published standards of design and performance for control apparatus which are being carefully followed by the leading control manufacturers. It is believed that users of control apparatus are benefiting by the resultant improvements of the design and construction of control apparatus. A secondary benefit is obtained by the user in the form of reduced prices on standard control equipments. It has been recognized by the manufacturers that too many parallel lines of control have been available and it is the desire of these manufacturers to simplify and reduce the number of controller types to the smallest possible number. Assistance in this direction from paper mill engineers and purchasing agents will be given by specifying those forms of control which are listed as standard by the manufacturers.

It is our hope that the table of paper mill applications of control included in this paper will be of use to the engineering members of the industry as a reference for selecting the more suitable types of control. The table is incomplete and necessarily will not long remain up to date, but is hoped that it will be of value to those who find occasion to use it.

Control of Stock Losses in the Paper Mill*

By A. T. Gardner[1]

The various stock losses in the paper mill may be classified as continuous and intermittent. The continuous losses are white water from the paper machines while the losses which are intermittent may come from several sources among which are overflowing of stock chests, wash ups, and changes.

Analytical Method

To have control of the losses it is necessary to have a complete survey of the mill so that all the small losses which make up the total loss can be determined. The survey should be made over a period of at least two months so as to include the various grades which are run. The method for measuring the quantity of water depends upon the local conditions but in most cases the weir can be used. For concentration of stock or pounds per thousand gallons a representative sample of 50 cc is filtered using a weighed filter paper. After filtering, the filter paper is dried and weighed. The increase in weight representing the bone dry stock. in the case of filler being present it is necessary to make an ash determination so as to have the per cent of filler in the stock. The above data are then computed to pounds per thousand gallons and per cent of clay. Fig. 1 is a representative form used in making a survey.

The Mill Survey

A complete survey should show the method of control best suited for the individual mill. The best results can be obtained by returning to the machine for make up, that white water which has the highest concentration of stock. In mills using trays under the wire the white water can be classified according to its concentration in the following manner; tray water, suction box water, suction couch water and wire pit water. The first mentioned has the highest concentration and the last the lowest. In some mills the tray water and suction box water are mixed and used for make up. The excess water is then passed through a saveall.

It has been found practical to keep the white water from these two sources separate so that the excess water will only consist of suction box water. This is done by means of a mixing box built with three compartments. The tray water is run into one compartment and the suction box water into another. The third compartment is used for the overflow. The fan pump is connected to the tray compartment and in order to maintain the level in this section the dam separating the tray water and suction box water is constructed so as to operate by means of a float. The top board of the dam is hinged at one end and connected to a float which operates with the level of the water in the tray compartment. The overflow dam is regulated according to the depth of water desired in the mixing box. At times considerable suction box water is required for make up and other times the tray water is sufficient to supply the machine.

ANALYSIS OF PAPER MILL WHITE WATER

DATE
MACHINE NO. FURNISH
GRADE OF PAPER SULPHITE
SPEED FT/MIN GROUND WOOD
PRODUCTION FILLER
NO. OF SHOWERS SIZE
PRESSURE ON SHOWERS ALUM

SAMPLE	WEIR LENGTH	HEAD ON WEIR	GALLONS PER 24 HOURS	LBS./M GALS. FIBER	LBS./M GALS. FILLER	LBS./M GALS. TOTAL	LBS./24 HOURS FIBER	LBS./24 HOURS FILLER	LBS./24 HOURS TOTAL	DISTRIBUTION OF LOSSES IN PERCENT MACHINE	DISTRIBUTION OF LOSSES IN PERCENT TOTAL
FURNISH											
TRAYS											
SUCTION BOXES											
TO SAVEALL											
WIRE PIT											
PRESS PIT											
SUCTION COUCH											
SUCTION PRESS											
TOTAL											

FIG. 1

WHITE WATER SYSTEM for PAPER MACHINE

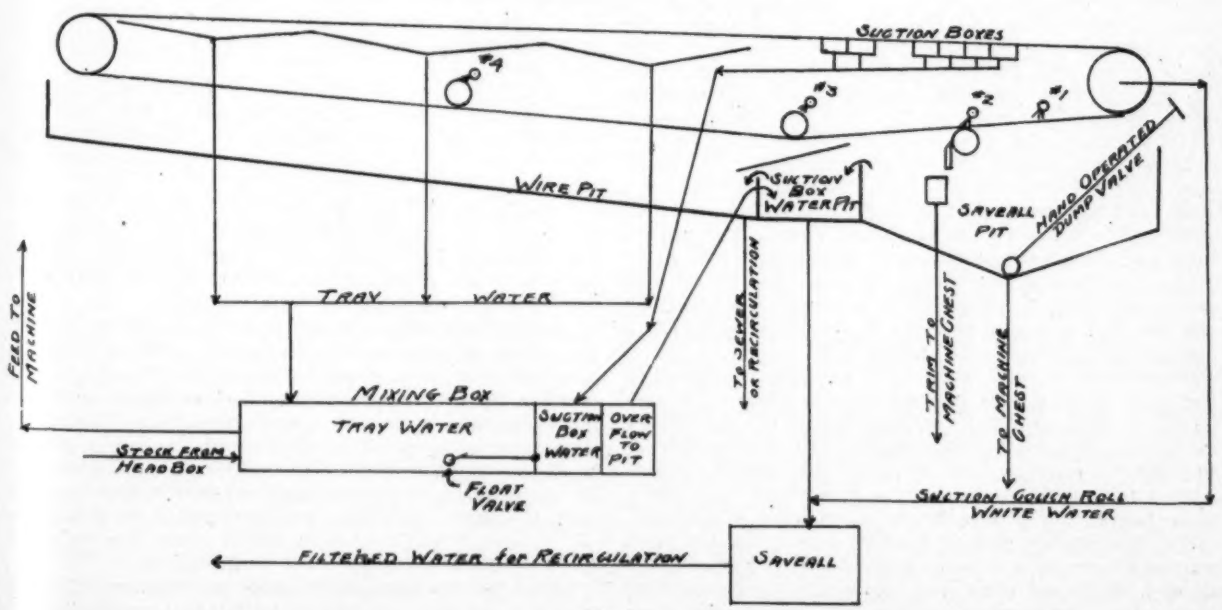


FIG. 2

* Presented at Fall Meeting of TAPPI, Wausau, Wis., September 26, 1928.
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Reduce Shower Water Requirements

The wire pit water consists of the white water from the wire between the last tray and the first suction box and also the wire showers. The problem in this case is to decrease the amount of shower water so as to increase the concentration of fiber. It has been possible where mills were using the old type of showers to install new showers which required only 50% of the amount of water without reducing the pressure of the shower water. When the stock content of water is below one pound per thousand gallons it is not practical to try to reclaim the stock. The problem then is to try to reduce the water as in the case above or allow the water to go to waste. This does not include water which can be used in a recirculating system.

Reclaiming System in Book Mill

Fig. 2 shows a system used in a book mill for the reclaiming of the stock in the white water from the paper machines.

In this case the saveall pit under the machine is used in case of a break. The shower No. 2 forces the sheet off of the wire and when the pit is filled the stock is dumped into the machine chest by means of the hand operated plug. When trimming on the wire it is advisable to build boxes which are piped directly to the machine chest so that the trimmed edge will not build up the stock in the saveall pit. This method relieves the machine tender of watching the saveall pit except in the case of a break at the wire. The compartments in the pit under the wire are separated by dams which are built so that the saveall pit overflows into the suction box water pit which is connected to the saveall and the latter overflows into the wire pit. This prevents the thick stock from the saveall pit from overflowing to the sewer and allows the suction box water to flow to the sewer when the saveall is shut down during a wash up.

In order to enrich the wire pit water a separate pan can be constructed so as to catch the white water coming from the wire between the last tray and first suction box. This pan is built two feet narrower than the pit so that it is one foot from each sill. This allows the grease or oil from the table rolls to drop into the wire pit. The pan is placed at an angle so that the water will drain into either of the two openings. The first opening permits the water from the pan to pass to the sewer and the other opening allows the water to pass through the saveall. A platform is built over the suction box pit to carry the water from No. 3 shower into the wire pit.

The filtered water can be used for shower water or in the beater room. In some cases this water is cleaner than the fresh water. When using the filtered water in the beater room care should be taken that the water does not color up, when running colored paper, as this may cause trouble in matching shades.

The balance of the stock losses are intermittent. This includes wash ups, changes and stock chest overflows. In the case of washups and changes the savealls should run until the saveall pit has been dumped. This prevents a large loss of stock. The balance of the losses are due to cleaning screens, dumping flow boxes and cleaning out jordan boxes. A separate saveall should be used for handling these losses. As these losses are not continuous one saveall is sufficient for all machines. Due to the fact that this stock is usually of poorer quality it can be used in a lower grade of paper such as wrapper stock.

By means of automatic alarms and light systems operated by float valves it is possible to prevent the overflowing of stock chests. In mills where this has been tried out it was surprising the number of times the alarm would sound, showing that before using this system some stock was lost from this source. After a few months of operation the men become more careful of the height of the stock in the chest and this loss is stopped.

For obtaining daily data on the stock losses from each paper machine it is necessary to have a weir equipped with an automatic sampling device and water level recording meter on each machine sewer. The automatic sampling device can be either motor driven or built with paddles so as to operate with the flow of water through the weir box. The latter gives more accurate results for when the flow increases the sampling device is speeded up so that more samples are taken. It therefore takes approximately the same number of samples per thousand gallons. In the motor driven sampler a definite number of samples are taken per minute regardless of the quantity of water. Samples taken every fifteen minutes will show a big variation during washupts. In most cases when a sample is taken at the beginning of a washup it will be twice as rich in stock content as the sample taken during normal operation. Because of the variation in flow and richness of the white water it is impossible to get accurate results without the automatic sampler and recording meter. It is possible to detect losses which occur at night and find out the time of the loss from the water level chart. During normal operation the effluent is fairly constant so that any increase in loss increases the effluent which is recorded on the chart.

In order to have a record of the losses for each shift, the samples from the automatic sampler can be run into a pail from which a representative sample for each shift can be obtained. All machine tenders will not use the same amount of water and it is therefore possible to secure a record of this from the recording water level meter.

Each Machine Has Its Own Pecularities

Each machine has its own peculiarites and it is necessary to make a daily inspection of each machine. Warmer weather which causes freer stock on the wire changes the flow of water into the trays and it is necessary in some cases to make changes in order to remedy this situation. The first tray may be too small to handle this increased quantity of water and if allowed to overflow will cause considerable loss. Also through neglect on the part of machine tenders, especially on starting up Monday morning, losses occur from various places on the machine which if not checked up will not be noticed and therefore not taken care of. In most mills the problem of stock losses is of great enough importance to warrant a separate department for this work and from the savings obtained has proven a very profitable investment.

TAPPI International

The growing recognition of the Technical Association as an international body is being made evident in the interest being displayed by the more progressive companies throughout the world in its activities. During the past few weeks three companies of very high standing have become Corporate Members of TAPPI. They are as follows:

Powell River Company, Ltd., of Powell River, British Columbia. This company manufactures about 500 tons of news print daily together with the necessary amount of groundwood and sulphite pulp. R. Bell-Irving, mill manager, will be the representative of the company in the Association.

Cooke & Nuttall, Ltd., Vale Paper Mills, Horwich, Lancashire, England, is the second English company to join TAPPI. This company operates two paper machines and makes label manilas, bag papers, casings and envelope papers. W. E. Nuttall will be the TAPPI representative.

Kramfors Aktiebolag at Kramfors, Sweden, is one of the most progressive companies in the Scandinavian countries. It is engaged in the manufacture of dry strong sulphite pulp and easy bleaching and strong sulphate pulp. Ten sulphite and eight sulphate digesters are operated. Baron Johan Mannerheim, President of the company, will be its representative. It is interesting to observe that Kramfors A/B as well as Holmens Bruks A/B have accepted young American pulp and paper makers into their mills as students under the American-Scandinavian Foundation. W. F. Gillespie who has been a chemist at the Bogalusa Paper Company mill in Louisiana is now at Kramfors.

All of the representatives of these new Corporate Members have been individual members of the Technical Association.

Piping Materials in the Paper Industry*

By T. H. Ireland [1]

The piping is a most essential part of the paper industry. It includes pipe, valves, fittings and auxiliary steam and water appliances such as safety valves, separators, regulating valves, traps and other apparatus. A great deal of time and consideration are given in the selection of steam generators, prime movers and their auxiliary equipment, yet for economical or other reasons the same consideration is not given to the design, selection and application of the piping material to make it safe and reliable for the operation of the entire installation of the factory or mill.

There are many installations where it is very dangerous for those who have to work around the piping. There are cases where the design is at fault; in others poor workmanship and others in which the piping is installed with material that the manufacturer never intended to be used for such kinds of service. The piping supported in such a manner as to form water pockets where condensate collects, drain outlets insufficient, located at the wrong place and in many installations where the drains are properly located, they are fitted with a globe or gate valve, and depend upon the human element for their safe operation instead of connecting them to a reliable steam trap.

Some piping systems do not have sufficient number of valves for their safe operation.

In many cases the important stop valves are not in a proper location; if such valves are properly located they are frequently found to have no means of relieving the condensation before opening them while they are under pressure, neither are they provided with a by-pass valve for equalizing the pressure in the pipe line before the valve is opened. According to reliable information there are more accidents that originate from defective piping than from defective boilers.

Drawings and Specifications

The piping should be designed to conform to the maximum steam requirements according to the pressure and temperature conditions. Make suitable provision for contraction and expansion, also for pulsation and other severe service conditions so that it may be safely operated by the attendants in the several departments. The valves and fittings should be of such material and sizes as are regularly made and recommended by the manufacturer for each service condition.

Avoid wherever possible, the use of specially designed fittings where connections can be made with fittings, that are regularly listed and manufactured for the service. Many piping systems have these special fittings because the location of the apparatus was considered before any thought was given to the piping connections.

The use of a special fitting in the original application of a piping system may after a considerable period of time, cause a serious interruption in the operation of a certain important part of the mill. To replace such a fitting, would require the making of drawings and a pattern before shipment could be made.

Type of Valves and Fittings

Certain manufacturers show in their catalogues and printed matter types and list of sizes that are regularly made and carried in their stocks from which prompt shipments can be made.

It is suggested that when designing a piping system that reference be made to the manufacturers information when selecting types and sizes of material especially flanged fittings. The Power Piping Society adopted a revised Standard Specification for Power Piping on January 12, 1928. It has been compiled as a guide for preparing specifications for practical applications of piping systems.

Water works engineers and others interested in various divisions of water distribution, including long flow lines, city supply mains, high pressure fire protection systems, etc., will be especially interested in this latest development in water service pipe.

"Talbot" Lined Pipe

Such problems as breakage, corrosion and depreciation in carrying capacity, due to tuberculation, are simplified and brought to a point of practical solution with "Talbot" lined steel pipe.

The strength and ductility of steel pipe is a recognized advantage in resisting failures due to sudden shocks and stresses from water-hammer, surges and emergency pressures, and particularly, from settlement. Steel pipe, being ductile, will not fracture under settlement strains. This advantage, coupled with a highly efficient lining and adequate protection from corrosion, makes a particularly attractive combination, and offers the engineer a thoroughly reliable distribution system.

The lining consists of a molten bitumen, especially treated to give the proper physical properties, mixed with a chemically inert filler finely ground, and is applied to the inside of the pipe by centrifugal process. The heated material is introduced into the interior of the pipe to be lined, and the pipe is rapidly revolved in a manner that spreads the material uniformly over the surface of the pipe with considerable force and of desired thickness, producing a uniform tightly adhering lining of exceptionally smooth finish.

This lining is tough, elastic and impervious to water. It does not react with water or dilute acids or alkali in any way and leaves no taste. As it has a high electrical resistivity, the tendency to pitting due to stray current electrolysis is greatly reduced. A lining of this nature not only presents a smooth, frictionless surface, but protects the pipe from the corrosive action of the water, resists to a high degree the attachment of adhesive growths, and eliminates tuberculation, thus preventing the eventual reduction of carrying capacity.

Pipe lined with this material on the inside can, of course, have various forms of exterior protection applied in the field or it can be furnished from the mill coated and wrapped on the outside, if desired. This outside coating and wrapping is an improved form of the regular or standard asphaltum coating heretofore used. The coating can be applied either single or double wrapper. Single wrapped coating is satisfactory for ordinary protection, while double wrapping is recommended for unusually bad soil conditions. In applying the coating, a strip of fabric saturated with hot mineral rubber compound and held under tension is wrapped spirally around the pipe with an overlap of about one inch on each turn. When double wrapping is desired, the first wrapping is allowed to cool somewhat and the pipe is again wrapped in the same manner.

While originally intended principally for the larger diameters, "Talbot" lined pipe is now available in sizes from four inches upward, and, unless otherwise specified, the lining will have a minimum thickness of ¼ inch on all sizes, although, of course, heavier thicknesses can be furnished according to special requirements.

Pipe so lined can be furnished plain end for specified coupler, with "Matheson" joint, or other bell and spigot type, bump joints, flange joints, etc., and in lengths up to 30 feet in certain sizes.

While "Talbot" lining is especially applicable to pipe intended for carrying water at normal temperatures, it will not deform at temperatures up to 170 degrees Fahrenheit, and will not crack or check when subjected to freezing conditions. Being quite flexible, it allows for reasonable distortion of material druing handling, and service connections can be made in tthe usual manner

* Presented at the Fall Meeting of TAPPI, Wausau, Wis., September 27, 1928

[1] T. H. Ireland, Associate Member TAPPI, Engineer, Crane Co., New York.

for steel pipe. Further, "Talbot" lining can be used on bell and spigot material where joints are caulked with molten lead.

In addition to its adaptability for municipal water mains, "Talbot" lined pipe is especially recommended for such services as drainage lines from coal mines, refinery wastes, textile and paper mill work, ammonia and brine lines, salt well operations, lines carrying sulphate of copper and iron, etc. It is not, of course, suitable for lines carrying naphtha, benzine, or other solvents of bituminous material.

This pipe should not be cut with an acetylene torch unless provision has been made for a supply of the lining material to repair any melted portion of the lining. Such additional material can be supplied with the pipe when shipment is made. It is customary to include with each shipment, a sufficient supply of lining material for sealing joints on the interior of the pipe so that the lining will be continuous.

Steam Velocities

It has been found in practice that for normal operation of steam lines in the industrial plants that the pipe sizes having sufficient area to deliver steam according to that given below has proven satisfactory. Especially in the paper industry where plant additions and changes are more frequent than in any other industry.

Service	Gage pressure in pounds per sq. inch	Velocity in feet per minute
Heating and drying	1-25	4,000
Reciprocating pumps and engines	60-150	6,000
Turbine superheated steam	250-400	8,000

Pitch of Steam Mains

Steam piping except branches to radiators and other similar applications, should always pitch down in the direction of the flow of the steam. For saturated steam low pressure lines a pitch of one inch in twenty feet, for higher pressures one inch in forty feet. In long lines provide suitable drip pockets, with drain outlets connected to a reliable steam trap.

Metals and Materials

Piping material for steam, water and other similar service is manufactured from several kinds of metals or combination of metals. The following is a list of metals that are used: Cast iron ferrosteel, malleable iron, carbon cast steel, alloy cast steel, forged steel, rolled steel, rolled stainless steel, forged stainless steel, welded steel pipe, seamless tubing, wrought iron.

Five different cast brass alloys, forged brass, rolled bronze and seamless brass pipe are also used.

Use and Application of Piping Material

There are five major service applications, of piping material, namely, steam, water, air, oil and gas.

Piping material for steam are commercially divided into pressure classes, as follows:—Low pressure up to 25 pounds steam working pressure and on vacuum lines as low as commercially attainable, namely 29.5 inches including vacuum.

125 Pound Standard Material: There is more of this class of material used in the United States and Canada than any other class.

150-175 Pound Steam Working Pressure—Medium Material: Piping material for this service is made in brass, ferrosteel and cast steel. Brass valves are made for 150 and 175 pounds. Ferrosteel valves are made for 175 pounds and have the same flange diameter and bolt circle as the 250 pound Standard.

250 Pound Steam Working Pressure Extra Heavy Material: Manufacturers are equipped to supply brass valves, iron valves, semi steel valves cast iron, malleable iron and semi-steel fittings for this pressure, and a maximum temperature of 500 deg. F.

Cast Steel and Forged Steel Material Series 15-30-60-90-135. These cast steel series figures represent the steam working pressure of each, as follows: 150-300-600-900-1350 pounds. The 15 series flanged valves and fittings have the same face to face and flange dimensions as the 125 pound standard. The 30 series flanged valves and fittings have the same general dimensions as the 250 pound standard. The 60-90-135 series conform to the new American standards adopted by the American Engineering Standards committee.

Valves for this class of material have their discs, body rings and stems made of metal suitable for the service for which they are intended.

When designing and specifying cast steel and forged steel material always specify the manufacturers figure number or describe the type and valve trimmings.

WATER RATINGS APPLIED ON STEAM MATERIAL

Material standards	Steam working pressure pounds per sq. inch	Water working pressure pounds per sq. inch
Low pressure	25	50
Standard	125—16" and smaller 100—18" and larger	175—12" and smaller 150—14" and 16" 120—18" and larger
Medium	175—16" and smaller 150—18" and larger	250—12" and smaller 200—14" and larger
Extra heavy cast iron	250—temps. up to 500 F.	350—10" to 12" 400— 8" and smaller

Flange Standards

They were effective January 1, 1928, and were developed under the procedure of the American Engineering Standards Committee, and adopted by the manufacturers Standardization Society of the Valve and Fitting Industry. Revisions were made in certain sizes of the 125 and 250 pound American Standard for cast iron pipe flanges and flanged fittings.

Crane Co. have prepared two charts each showing the adopted standards. The items where changes have been made are indicated in red ink so that they be easily distinguished from those that have not been changed.

It will also be noted that the 4½, 7 & 9 inch sizes have been omitted in both the 125 and 250 pound standards. The charts are available by request. These charts should be used as a reference by those who design, specify requisition, order and apply piping with the cast iron flanged material, also brass flanged valves and fittings having flanges of the same general dimensions as the cast iron patterns.

In mills where there are flanged pipe outlets on pumps, engines and other apparatus having flange dimensions not shown on the charts, and flanged valves and fittings are wanted to connect to such flanged outlets, it will be necessary to furnish the manufacturer the inside and outside diameters, bolt circle, number and size of bolt holes for each size flange. It is also advisable to furnish a template with the order.

Pipe Bends

Pipe bends may be used for an almost infinite variety of conditions and their uses may be broadly classified as follows:—

(1) For steam lines to provide flexibility and compensate for expansion and contraction.

(2) To reduce the number of joints in a pipe line.

(3) To avoid obstruction such as columns, pipes, foundations or other similar condition which ordinarily would require many pieces of pipe and fittings.

(4) For coils in heaters, refrigerating system, etc. The type and shape of the bend depend entirely on local conditions and the arrangement of the piping in which the bend is to be used.

Careful consideration must be given in the selection of a bend in order to obtain the anticipated results.

The weight of the pipe, the radius and the design of the bend must be proportioned to take care of the amount of expansion and contraction so that it will relieve the pipe line joints from being set out of alignment and at the same time have a good factor of safety for the pipe bend.

It was known that pipe with thin walls is more flexible than pipe with thick walls and that a long radius bend is more flexible than one having a smaller radius, but exact knowledge or information relative to expansion values were scarce. Because of this fact and as a result of the many inquiries for this information Crane Co. made extensive tests during the year 1915 with various types of bends in several sizes and weights of pipe to de-

termine their relative value. The results of these tests are available by request.

Where a pipe band is installed to accommodate the expansion and contraction strains in important parts of the piping system, it is advisable to use the Crane lap type of joints with forged steel flanges both on the ends of the pipe bend and the flanges on the ends of the pipes that are connected to the bend, regardless of the steam working pressure.

The pipe supports should be so arranged that the pipe bend and the piping shall have a free movement to correspond with the travel of the pipe while expanding and contracting. It is not an uncommon sight to see a perfectly proper pipe bend applied to the piping and supported with a rigid pipe hangar from the overhead structure, with the result that when the piping is subjected to the temperature of the steam, the piping expands, the pipe bend in changing its shape due to the expansion, swings as far as possible in the hangar until some part of the piping has been raised to form a dangerous water pocket.

Steam Receiver Separators

A steam receiver separator performs three important functions when applied to a reciprocating engine providing that its cubical contents are sufficient to handle the steam requirements.

(1) To separate the condensation from the steam before it flows into the engine.

(2) To maintain a constant cylinder pressure of not more than two per cent difference between that of the pressure at the throttle valve from the point of admission to the point of cut off.

(3) Reduces the vibration caused by the pulsation of the steam in the piping system to a minimum.

The receiver steam separator must have sufficient volume to reduce the velocity of the steam to precipitate the condensation to its drain outlet, to have a storage of steam to immediately supply the cylinder requirements from the point of admission to the point of cut off.

To prevent the pulsation of the steam and the vibration of the piping.

The writer is indebted to Mr. C. Enger[1] for the following data on receiver steam separators, that has been used with excellent results for applying them to reciprocating engines.

Receiver Steam Separator Data by T. H. Ireland

To compute the size of a Receiver Steam Separator for reciprocating engine.

1st Compute the cubic volume of the high pressure cylinder.
2nd Count the revolutions per minute of the crank shaft.
3rd Multiply the cubic volume by the constant shown opposite the revolutions per minute.

By C. ENGER

Revolutions per minute	Constant
80	4
100	4.2
120	4.4
140	4.6
160	4.8
180	5
200	5.2
230	5.4
260	5.6
290	5.8
320	6

EXAMPLE

Give size of Receiver Steam Separator for the following engine:
Corliss Valve Engine Cylinder diameter 26 inches
stroke 42 inches
R.P.M. 120
Constant for 120 R.P.M. 4.4
Steam Gauge Pressure 125 pounds
Size of Throttle Valve 10 inches

The area of a 26 inch circle is 530.93 square inches.
530.93 x 42 = 22299.06 cubic inches volume of cylinder.
22299.06 x 4.4 = 98115.864 cubic inches required volume of a receiver steam separator.

[1] Hartford Steam Boiler Insurance Co., Chicago, Ill.

A circle with a diameter of 36 inches has an area of 1017.9 square inches.
98115.864 ÷ 1017.9 = 96.3 inches required length of the shell for the receiver steam separator.
A Crane No. 034 Vertical Receiver Steam Separator with the shell 36 inches in diameter and 108⅞ inches total length with two 10 x 17½" flanges, is recommended for the above engine.
A No. 33 Cranetilt Non-Return Trap is recommended to be connected to the drain outlet.

Stop Check or Non-Return Valves

Specify steam traps on their discharging capacity—not by pipe sizes.

Apply steam traps at points where condensation will collect, many traps are installed where condensation does not collect and are, therefore, useless.

Install angle and "Y" Blow off valves with the pressure from the boiler on the top of the disc when the valve is in a closed position.

Should the stem be broken or the disc become separated from the stem the boiler pressure and the velocity of the water will close the valve automatically.

Stop Check and Non-Return Valves

Nearly all modern boiler plants that have more than one boiler connected to the same header have a non-return valve between each boiler and the header. This type of valve is used to prevent the header pressure from entering a boiler having a lesser pressure. It allows a boiler to be cut in automatically. When a boiler is to be cut out of service or carried under pressure with a banked fire, it is only necessary to discontinue the fuel supply. As the internal parts of the furnace that have been subjected to the products of combustion gives up its heat which is absorbed by the water in the boiler, it will cause the pressure to rise and flow into the header during such periods of time until there is not sufficient furnace heat to raise the boiler pressure equal to the header pressure.

In a certain boiler plant where all of the boilers were not operated continuously and after the non-return valves had been applied there was brought about a considerable saving in fuel. Because when the boilers were operated and a part of them was cut out of service by means of hand operated stop valves, it was necessary to frequently admit boiler feed make up water and then discharge it through the blow off valves until they stopped generating pressure. It is advisable to locate the non-return valve in such a position that condensation will not accumulate within the valve and its outlet pipe that is connected to the header, during such periods of time that the boiler is under pressure and floating on the line, or cut out of service. A non-return valve should be so designed that it will operate without chattering and wire drawing of the disc and seat regardless of the pulsations of the steam or the quantity of steam flowing through the valve.

Requisitions and Orders

Requisition for piping material are usually made by the engineering or pipe fitting departments in the paper industry and are sent to the purchasing department who copy the requisition on a purchase order. In many cases such orders after being received by the manufacturers, are found to be so indefinite that they are returned to the purchasing department for their interpretation. The purchasing department being unable to give the information, finds it necessary to communicate with the person who issued the requisition.

These conditions frequently cause serious delays in furnishing material for emergency repairs or applications. Those who have the authority to issue requisitions and orders will often avoid unnecessary delays. If they will refer to the valve and fitting manufacturers catalogues and printed matter which gives the trade names, classification and list of sizes regularly manufactured and carried in their stocks for immediate shipment.

The following are copies of indefinite orders that were received by a manufacturer and returned to the purchasing departments of each concern for further information. In each case it was neces-

sary to refer the order back to the mill for further information. These copies are designated as mills No. 1, 2 and 3.

Order for Mill No. 1

1—8" Standard C. I. Ell
6—6" Standard C. I. Ells
6—4" Standard C. I. Ells
12—3" Standard C. I. Ells
1—8" Standard C. I. Flanged Coupling
3—6" Standard C. I. Flanged Couplings
3—4" Standard C. I. Flanged Couplings
6—3" Standard C. I. Flanged Couplings
6—6" Standard C.I. Tees
10—6" x 6 x 3 Standard C. I. Tees
10—3" x 3 x 1 Standard C. I. Tees
1—8" x 6 Standard C. I. Reducer
2—6" x 4 Standard C. I. Reducers
2—4" x 3 Standard C. I. Reducers

The above does not specify if the elbows, tees and reducers are screwed or flanged ends. Refering to the fifth item pipe couplings are regularly tapped with threads and not flanged. After several days delay the person who issued the requisition advised that they wanted Standard cast iron flanged elbows, tees and taper reducers.

Instead of flange couplings they wanted standard cast iron companion flanges. The items should have been written as follows:—

Std. C. I. Flanged ells faced and drilled
Std. C. I. Flanged tees faced and drilled
8 x 13½ inch Std. C. I. Companion flanges, faced and drilled instead of flanged couplings
8 x 6 inch Std. C. I. Flanged taper reducers faced and drilled

Mill No. 2

6—1½ inch gate valves
4—2½ inch gate valves
6—3 inch gate valves

After the order had been referred to the mill, received the information that they wanted brass rising stem gate valves for 125 pound steam working pressure. The item should have specified as follows:

No. 440½ gate valves

The figure No. 440½ is the catalogue number of a certain valve and fitting manufacturer and designates the type and steam working pressures for which it is intended to be used.

Mill No. 3

¼" Screwed Brass Relief valves, fig. No. 1134 as shown on page 133 your catalogue.

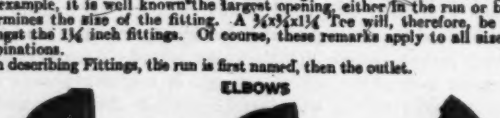
This order specifies the type of relief valves wanted, but does not state the set pressure at which each valve is to be set.

STANDARD CAST IRON FITTINGS

In arranging the order of Cast Iron Fittings we will use the following rule: For example, it is well known the largest opening, either in the run or branch determines the size of the fitting. A ¾x¾x1¼ Tee will, therefore, be found amongst the 1¼ inch fittings. Of course, these remarks apply to all sizes and combinations.

In describing Fittings, the run is first named, then the outlet.

ELBOWS



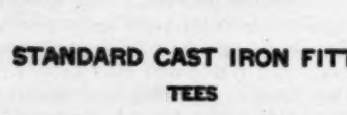
ELBOW — REDUCING ELBOW — 45° ELBOW

STANDARD CAST IRON FITTINGS

TEES

In describing Tees, the run is first named, then the outlet, thus:

½ T ½-½x¾ — ½ T ¾-½x¾x¾



TEE — REDUCING TEE

When selecting flanged fittings for piping refer to the valve and fittings manufactures list of sizes that are regularly made and carried in stock, as shown in their catalogues and printed matter.

A piping system may be designed with a 6 x 1 x 6 inch standard cast iron flanged tee faced and drilled.

This size is not listed, the nearest size is a 6 x 2 x 6 inch tee.

The 1 inch outlet can be made by using a 1 x 6 standard cast iron screwed companion flange faced and drilled.

Companion Flanges

When specifying companion flanges give the following information:

(1st) The pipe size
(2nd) The outside diameter of the flange.
(3rd) Standard or Extra heavy for cast iron.
(4th) Series 15-30-60-90-or 135 for forged and cast steel.
(5th) State if screwed, or other type of pipe connection.
(6th) Faced only or faced and drilled.
(7th) Give the type of flange facing if other than the regular manufactured facing.

Example

Wanted a 6" extra heavy cast iron flange to be screwed onto a pipe and bolted to a 6" extra heavy flanged valve or fitting.

Specify 1—6 x 12½ Extra heavy cast iron screwed companion flange faced and drilled.

Reducing Flanges

When a flange has a smaller pipe size than that of the flanged fitting to which it is to be bolted:

(1st) Give the size of the pipe.
(2nd) The outside diameter of the flange on the fitting that is to be bolted to the reducing companion flange.

Example

Wanted an extra heavy cast iron flange to screw on a 6" pipe and bolted to a 14" extra heavy flanged fitting.

Specify 1—6 x 23 extra heavy cast iron screwed companion flange faced and drilled.

In conclusion this subject has been presenetd with the idea in mind that it would contain sufficient information to be of interest to those of the Paper Industry who are required to design, purchase, apply and operate piping equipment.

The topics selected and mentioned are based upon actual experience of having a personal contact with those who have had piping problems to solve. It is hoped that a reading of this paper will induce paper mill engineers to study their mill piping layout and to get the best results in handling steam, water, pulp, etc in their respective mills.

Paper Making in Australia From Native Woods

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 3, 1928.—Wood pulp made from the Australian *pinus insignis* by the sulphate (or kraft) process is suitable for paper making and is practically equal in quality to the pulp now imported into Australia for that purpose, it is now announced as a result of experiments conducted by the Council for Scientific and Industrial Research in conjunction with Australian Paper Manufacturers Ltd., at the request of the South Australian Government, according to a report from Vice Consul Leo J. Callanan, Adelaide, made public by the Department of Commerce.

In the course of the experiments 80 tons of green timber were used. The South Australian Government is inviting offers for the purchase of 20,000,000 cubic feet of *pinus insignis* in order to encourage the establishment of a paper industry in the State. It is proposed to make deliveries over a period of 15 years.

C. T. Jewell Jewell Reported Improved

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., October 1, 1928.—Corwin T. Jewell, general manager of the St. Regis Paper Company and associated companies who has been ill at Clifton Springs, is reported as greatly improved and his return to his official duties is expected in a few days.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

Cost of Compensated Accidents New York 1927-1928*

Over 93,000 workers in New York State industries who had received injuries serious enough to disable them for over a week were awarded compensation during the past year. The exact figure of 93,565 represents the number of cases actually closed with awards in the year from July 1, 1927, to June 30, 1928, by the Department of Labor.

Every employer must report industrial accidents however minor. Several hundred thousand were reported during the year, but a great many were not given awards either because the injuries were not serious enough for the workers to claim compensation or because the cases were disallowed.

Decrease of Over 5,000 Compensated Accidents

The table of the number of cases closed for each of the past six years indicates a decline of over 5,000 in the total number of cases from 1927 to 1928. The 1928 figure is still over 17,000 greater than that of 1924-1925. A change in the law effective January 1, 1925, which reduced the waiting period from 14 to 7 days accounts to a great extent for the increase in number of cases closed for the past three years over the previous three.

NUMBER AND COST OF COMPENSATED ACCIDENTS BY KIND OF DISABILITY

Kind of disability	No. of cases closed in year ending June 30		Amount of compensation in year ending June 30	
	1927	1928	1927	1928
Total	94,984	93,565	$28,186,003	$28,003,075
Death	1,042	1,129	*6,980,588	*7,337,641
Permanent total	41	52	*547,620	*764,491
Permanent partial	18,518	17,021	14,044,685	13,192,522
Temporary	79,383	75,363	6,613,110	6,708,421

* Present value based on the age of the dependents in death cases and the age of the claimants in total disability cases.

The number of accidents alone means little unless accompanied by figures with regard to the type of accident, cost of compensation and loss of time. As usual, temporary injuries, injuries which leave a worker with no permanent effects, headed the list in number with 75,363 cases, a reduction of over 4,000 from the previous year. More than 17,000 workers suffered from injuries which will handicap them partially in their future lives, such as the loss of a finger or foot. This is a decrease of almost 1,500 from 1927.

However, both the death and permanent total disability cases increased. During the year just ended, 1,129 death cases were closed, 87 more than in 1927. Permanent total injuries in which the worker is permanently and totally incapacitated for work for the remainder of his life such as through the loss of both eyes or both arms amounted to 52, 11 more than in the previous year.

* Industrial Bulletin.

In spite of the reduction in number of cases closed and of weeks awarded, no proportionate reduction appeared in the total spent for compensation which amounted to over $28,000,000 in 1928. Partial explanation is offered by the change in the Compensation Law, effective October 1, 1927, which increased the maximum weekly compensation which a worker could receive for the period of total disability from $20 to $25. Not all of the cases fell under this new law for accidents which occurred previous to October 1, 1927, were settled under the $20 maximum law. Forty-six per cent of the workers earned more than $30 a week. This means that many of these would have benefited by the change in law had it been effective throughout the entire period.

NUMBER AND COST OF COMPENSATED ACCIDENTS
Permanent Partial and Temporary Cases Closed in Year Ending June 30, 1928

Industry	Kind of Disability: Permanent Partial No. of cases	Permanent Partial No. of weeks	Temporary No. of cases	Temporary No. of weeks	Compensation (Permanent, partial and temporary)
All industries	17,021	746,422	75,363	416,921	$19,900,943
Manufacturing	7,056	294,641	27,806	130,426	7,044,585
Construction	4,010	180,005	17,535	124,231	5,626,326
Transportation and public utilities	2,559	113,920	12,702	71,717	3,254,559
Trade	1,362	52,879	7,458	37,966	1,521,964
Service	1,735	89,654	8,132	44,342	2,071,815
Other	299	15,323	1,730	8,239	381,694

The increased number of deaths and permanent total cases also helps to account for the high figure of compensation inasmuch as settlement for these cases runs considerably greater than for permanent partial and temporary injuries. Whereas the average cost of temporary cases was $89 and permanent partial injuries $775, the average cost of deaths ran as high as $6,499 and of permanent totals $14,702 per case. In order to determine the cost of death and permanent total cases, the present value of the award is computed on the basis of the actual age of the dependents left in each case of death or of the age of the claimant in each case of permanent total disability.

However, the bulk of compensation, almost half, went toward permanent partial cases although they constituted less than 20 per cent of all cases. Death and temporary cases cost roughly the same amount, although temporary cases were over 65 times as numerous as death cases. That temporary cases are not so serious and hence not so costly is illustrated further by the fact that they cost half as much as the permanent partial cases but number about five times as many.

Not only must the total number of persons injured be accounted for and the cost of compensating them, but the amount of time lost to industry must be considered. The total time lost can not be determined since no allowance is made for death and perma-

nent total cases. Over 1,163,000 weeks were awarded to permanent partial and temporary cases. Even this figure does not account for the first week of illness when no compensation is paid except in cases that last over 49 days. If the customary allowance of 1,000 weeks is made for each death and permanent total case, the grand total of weeks lost equals more than 2,340,000. In more vivid terms this means society lost the productive labor of over 45,000 men and women for one whole year.

NUMBER AND COST OF COMPENSATED ACCIDENTS
Death and Permanent Total Cases Closed in Year Ending June 30, 1928

Industry	Kind of Disability — Death — No. of cases	Death — Present value	Permanent Total — No. of cases	Permanent Total — Present value
All industries	1,129	$7,337,641	52	$764,491
Manufacturing	251	1,661,083	22	320,916
Construction	328	2,220,930	18	268,213
Transportation and public utilities	248	1,601,570	4	55,659
Trade	76	489,865	2	41,925
Service	181	1,068,083	5	69,968
Other	45	296,110	1	7,810

NUMBER OF COMPENSATED ACCIDENTS BY INDUSTRIES

Industry	Number of Cases Closed in Year Ending June 30 1923	1924	1925	1926	1927	1928
All industries	58,078	72,983	76,216	99,673	98,984	93,565
Manufacturing	26,429	32,533	31,254	41,245	39,837	35,135
Construction	10,230	13,361	15,632	20,464	21,606	21,891
Transportation and public utilities	10,973	13,654	13,561	17,627	16,666	15,513
Trade	4,750	5,931	6,759	9,218	9,167	8,898
Service	4,127	5,589	7,030	9,091	9,559	10,053
Other	1,569	1,915	1,980	2,028	2,149	2,075

RELATIVE INCREASE IN COMPENSATED ACCIDENTS

Industry	Index Numbers, Year Ending June 30 1923	1924	1925	1926	1927	1928
All industries	100	126	131	172	170	161
Manufacturing	100	123	118	156	151	133
Construction	100	131	153	200	211	214
Transportation and public utilities	100	124	124	161	152	141
Trade	100	125	142	194	193	187
Service	100	135	170	220	232	244
Other	100	122	126	129	137	132

Only Construction and Service Accidents Increased

The most striking fact about the number of accidents is the sudden drop of five and a half per cent from 1927. Every industry but two, construction and service, followed this downward trend. Unusually large was the decline of 12 per cent in manufacturing. Transportation and public utilities followed next with a seven per cent decrease. Trade accidents dropped three per cent and accidents in other industries three per cent.

Decided Upward Trend for Six Years

Construction and service have shown the most decided upward trend for the past six years. This year saw no reversal of movement. Construction accidents increased one per cent over 1927. Accidents in the service group of industries which includes all kinds of clerical, office, professional and municipal work, hotels and restaurants, care of buildings, and amusement places, went up five per cent.

Manufacturing still contributes the largest number of accidents but has never gone as far above its 1923 figures as the other industries. Whereas manufacturing accidents have dropped from 46 per cent in 1923 to 38 per cent in 1928 of the total number of cases in each of these years, construction accidents in the same period have increased from 18 to 23 per cent. Probably it has been easier to eliminate accidents in industries such as manufacturing where the use of machines permits the installation of safety devices, guards, etc. The hazardous nature of construction work together with the extensive building operations in recent years helps to explain its increasing accidents.

Service has shown the greatest increase in accidents for the past six years. The increase of 144 per cent since 1923 does not necessarily indicate that a greater number of accidents are occurring in service in proportion to the number employed but may be partly due to the fact that those engaged in service are taking greater advantage of the law.

An overwhelming majority of the accidents occurred to men, due not only to the fact that fewer women are employed in industry but also that the latter can not enter the more hazardous occupations. Only 7,020 women were awarded compensation for injuries received in the course of their employment while 86,545 men received such awards.

COST SECTION

Box Board Production

WASHINGTON, D. C., October 1, 1928.—August production of box board, based on reports to the Department of Commerce by 93 firms operating 120 plants (reports for earlier months including four concerns now out of business) was 77.9 per cent of capacity, as compared with 73.1 per cent in July and 78.3 per cent in August, 1927. In the following table the capacity data vary according to the normal number of working days in each month:

The Ford tri-motor plane was kept in Hamilton for use during the stay of the New Yorkers who thoroughly enjoyed their experience. It was flown back to Cincinnati with Mr. Chambers. Another member of the party that came to Dayton to meet the visitors was E. K. Hunt, advertising manager of the Champion Coated Paper Company.

Year and Month	Operation — Inch hours — Capacity	Operation — Inch hours — Operated	Operation — Per cent of Capacity	Production — Short Tons — Capacity	Production — Short Tons — Output	Production — Per cent of Capacity	New Orders — Short Tons	Unfilled Orders (end of month) — Short Tons
1927								
January	10,474,300	6,998,505	66.8	275,100	173,629	63.1	194,285	105,669
Feb.	10,055,328	7,583,477	75.4	264,096	189,273	71.7	183,861	102,005
March	11,312,244	8,627,946	76.3	297,108	219,824	74.0	230,065	114,369
April	10,893,272	7,771,040	71.3	286,104	205,589	71.9	197,435	101,861
May	10,474,300	7,836,315	74.8	275,100	200,216	72.8	194,122	93,248
June	10,893,272	8,277,054	76.0	286,104	214,704	75.0	213,735	94,847
July	10,474,300	7,443,012	71.1	275,100	190,406	69.2	213,649	109,616
August	11,312,244	8,877,682	78.5	297,108	232,587	78.3	227,978	106,076
Total 8 mos.	85,889,260	63,415,031	73.8	2,255,820	1,626,228	72.1	1,655,130	.....
1928								
Jan.	10,372,900	7,833,458	75.5	273,125	203,882	74.6	204,128	80,417
Feb.	10,372,900	8,136,737	78.4	273,125	211,862	77.6	215,333	85,862
March	11,312,244	8,843,542	78.2	297,108	227,344	76.5	244,871	93,380
April	10,474,300	8,311,710	79.4	275,100	221,079	80.4	211,304	84,513
May	10,893,272	8,733 965	80.2	286,104	242,394	84.7	224,366	73,157
June	10,893,272	8,199,515	75.3	286,104	228,646	79.9	228,252	77,782
July	10,474,300	*7,992,170	*76.3	275,100	*201,153	*73.1	*209,976	79,492
August	11,312,244	9,101,852	80.5	297,108	240,787	81.0	240,064	75,956
Total 8 mos.	86,105,432	67,152,949	78.0	2,262,874	1,777,147	78.5	1,778,294	.....

Year and Month	Shipments of boxboard — Short Tons	Stocks of boxboard, end of month — Short Tons	Consumption of waste paper — Capacity — Short Tons	Consumption of waste paper — Consumed — Short Tons	Per cent of Capacity	Stocks of waste paper, end of month — At plants — Short Tons	Stocks of waste paper, end of month — In transit and unshipped purchases — Short Tons
1927							
January	175,528	53,562	256,450	163,337	63.7	163,023	38,062
February	189,032	53,327	246,192	182,322	74.1	158,222	40,602
March	217,876	54,566	276,966	209,730	75.7	155,513	43,789
April	209,944	50,211	266,708	189,942	71.2	147,938	46,314
May	201,788	48,906	256,450	193,077	75.3	149,438	59,289
June	211,828	52,452	266,708	207,187	77.7	151,671	43,807
July	194,285	49,307	256,450	182,283	71.7	150,709	51,255
August	229,722	52,071	276,966	227,907	82.3	128,818	70,035
Total 8 mos.	1,630,003	.....	2,102,890	1,555,875	74.0	.....	.....
1928							
January	196,984	49,032	255,225	189,744	74.3	153,747	62,181
February	209,477	50,350	255,225	193,966	76.0	140,104	60 038
March	237,621	40,439	276,966	209,649	75.7	139,255	47,322
April	220,315	40,319	256,450	211,898	82.6	132,621	47,551
May	235,794	49,107	266,708	220,750	82.8	127,217	46,375
June	223.901	53,560	266,708	204,468	76.7	130,484	43,480
July	*203,741	*49,969	256,450	*190,810	74.4	*132,265	62,056
August	243,064	48,055	276,966	219,012	79.1	118,507	47,969
Total 8 mos.	1,770,897	.....	2,110,698	1,640,297	77.7	.....	.....

* Revised.

New York Mills Affected by Low Water

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 1, 1928.—After operating at full speed during the summer, usual low water periods, paper mills of the Upper Hudson Valley are beginning to be affected by a shrinkage in the flow of the river. Usually during the summer months a scarcity of water forces the mills to reduce capacity to 40 or 50 per cent but during the past summer most mills operated at top speed owing to the excessive rainfall. While operations have not been seriously interfered with as yet and most plants continue running in full the low water in the river has in some instances necessitated the starting up of auxiliary steam plants. It is not believed that the low water conditions will become such as to cause any marked reduction in the capacity of most plants.

Due to the unusually favorable operating conditions of the past summer many of the paper mills located on the Upper Hudson and its tributaries will show a record production for the year.

Sound Cost Accounting Advocated for Canadian Manufacturers

By Prof. R. R. Thompson of McGill University

At a recent meeting of the Canadian Society of Cost Accountants, Prof. R. R. Thompson of McGill University, advocated the fuller use of advanced cost finding procedure by Canadian manufacturers. In a noteworthy review of the whole subject of cost accounting, he explained how accounting methods already in use can be developed in such a way as to provide the necessary cost information. Among other things Professor Thompson said:

Years ago the margin between the cost of goods and their selling price was very much larger in most lines than it is today. Most of us know that only too well, and we also know that the necessity for the most efficient organization and management and the closest analysis of expenses is felt now as never before.

Again, most manufacturing plants have grown to such size that personal supervision of every portion by the chief executive is utterly impossible. They must depend on whatever means are available to give them a mental bird's-eye view of their plans. The better the view they get, the better can their supervision be. The worse their view, the worse their supervision. That view will be obtained by periodical statistical and other reports, by graphic charts, and so on.

Here again, I come to another truism: if those reports and charts are correct, and give sufficient detail, they form a sound foundation for the direction of the affairs of that concern; if they are incorrect or do not give sufficient detail, they are like bad charts to a mariner—he will flounder about along dangerous coasts which so far as he is concerned are practically uncharted, and will not know he is near danger until his ship has struck a reef.

Yet another truism: the finest charts in the world are of no use to the mariner who does not know how to use them. The best collection of statistical reports and graphic charts is useless to the management who ignores them.

In the modern manufacturing business we require two things: (1) Statistics, reports, and graphic charts which are reliable, and give sufficient detail to be of value, and (2) proper study by the management of those reports, and proper heed paid to their lessons.

Now these reports regarding the workings of a manufacturing concern can be obtained only when there is a good system of cost accounts in operation. In other words, Canadian manufacturing, constructional, and mining businesses must have good systems of cost accounts, and they must have executives who know how to use them.

Cost System Branch of General Accounting

Cost accounting is a branch of general accounting. Its functions are to analyze and record the costs of various items of material, labor, and expense incurred in the operations of a factory, constructional work, and so on, so that the total cost of finishing a certain quantity of goods, or of finishing a certain work, can be ascertained with as much exactitude as possible. By this means the management knows what certain goods cost to complete, or what a certain piece of constructional work will cost to finish.

The management will watch day by day how the costs are mounting up. A daily report can be made of production in the various departments, and so on. Cost accounts should give rapid information as to where expenses are rising out of proportion to a rise in the volume of production. Cost accounts are mainly concerned with full details of the immediate present, so that the management may learn things quickly and more easily control the future, by changing a policy before too much money has been lost.

Cost accounts are the daily or weekly newspapers of business. The general accountant is more of an historian. He is more concerned with correctly recording everything that is going to affect the whole business financially; he takes a broad view of the past, and his figures show broadly what profit or loss has been made.

Exactly where profits and losses have been made the general accounts do not always disclose so easily. Even if they do indicate their location fairly well, the information is usually not supplied quickly enough to prevent a heavy loss of some kind. This applies even to concerns which produce a monthly statement. Many businesses do not know what has happened until several months afterwards when all that can be done is to write off the past loss and, if it has been located with any degree of certainty, try to avoid it in future.

A good cost accounting system should disclose serious wastage, falling off in production, and so on in a few days. Today, the manufacturer must watch his expenses and production with great care, or he will find himself thrust out by those who do. Careful estimates of cost must be made. Good guesses as to cost on the part of foremen will no longer suffice, no matter how clever these foremen may be.

Within the last ten years they had an investigation in the United States as to how many businesses were paying and how many were not. Out of a quarter of a million business corporations, the majority were making no profit at all. Furthermore, statistics showed that only 5 per cent of the manufacturers knew what their goods cost them to make. In other words, 95 per cent were working in the dark.

Canadian Manufacturers Want to Know Costs

We want to avoid such conditions in Canada. How far such conditions exist in Canada we do not know. But this we know, that we must do all that we can to avoid them. I do not believe it will be a very difficult matter if every Canadian manufacturer makes sure that his business has the best accounting system available for it. Most concerns already have in use forms which, with a little alteration, can be adapted and incorporated into a system of cost accounts. Most concerns already have good stores and stock records, materials and stores requisition forms, time tickets, wage-sheets, production reports, job cards and so on.

Very little more is necessary, so far as returns are concerned, than a few additions to the form already in use, and the addition of cost sheets, and statements dealing with the distribution of the general factory expenses. When the installation of a system of cost accounts is being considered, I always recommend a policy, so far as forms and returns are concerned, of as little alteration as possible of whatever forms and returns are in use.

Let us consider the advantages of a good system of cost accounts. The management will be supplied with a continuous report of its expenditure in the material out of which the finished product is made, in the wages of the men directly at work on production, in the consumption of stores, in the quantities of work finished, and in such expenses as the wages of men working about the factory, although not working on the goods being finished. This will be supplied separately for each department, or for each class of goods, or for each job or contract.

The entire business comes under the direct review and control of the management.

[*] The American Accountant.

Production Costs Can Be Compared

The records follow the material from the time it enters the store until it goes into warehouse as the finished product. They show the time, labor, and expense used up in its manufacture. They will show abnormal losses of material, wasted time, cost of defective work, and where it occurred, and will usually indicate good and bad supervision.

The costs of production for different periods, and under different conditions, are recorded. Various methods of manufacturing can be compared, bench work with machine work, day work with piece work, and so on. The cost of a job just finished can be compared with the estimated cost, or the cost of a previous similar job.

With a costing system it is possible to set up definite standards in factories and on construction works. This will help in regulating the flow of work and seeing that departments keep in time with each other.

The cost of an article or job being known quickly and with reasonable accuracy, the management can see how their selling prices compare with their costs; they can cease manufacturing articles made at a loss, and press on with the production and sale of profitable lines. When the management can fix its selling price for a contract, there is less danger of its taking on work at a loss, and allowing to pass by contracts which they could complete at a profit. Incidentally, when salesmen are paid by a commission on their profits, correct rates can be ascertained.

A costing system will provide for the keeping of detailed inventory records of raw material, stores, finished parts, finished goods, which should be written up daily. There will also be records of work-in-process of manufacture. From these records returns can be prepared which will show quickly, (a) abnormal losses of material and stores; (b) which stock is becoming obsolete; (c) what stocks of material, stores, finished parts, and finished goods are getting low, so that the purchasing department or the factory will have to replenish them; (d) what are the fire insurance requirements.

Whenever possible, the costing system should link up with the general accounting system. In some classes of manufacturing this is easy; in others less workable, because of very practical difficulties. In some it may be impossible without detailed work, the expense of which is prohibitive.

The tie-in with the general accounts, however, should be the aim of those controlling the accounting systems of a concern; because the cost accounting system and the general accounts should be checked up, one against the other. Whenever this is done, valuable information is invariably obtained. This is especially so when prices have to be based on the costs as estimated within a few days after the completion of a job. It is sometimes found that some of the expenses for the completion of jobs have been omitted, and a selling price has been made which is too low.

The value of the cost accounts for the purpose of amplifying the periodical statements produced from the general accounting system is, I think, too obvious for me to need to lay stress on it.

In conclusion, we may consider some of the objections which one hears raised against the installation of costing systems.

Might Increase Profits

There is the manufacturer who says that he has a unique business, has no competitors to fear, and can fix his selling price as he thinks fit. That may be, and he may be making good profits. Nevertheless waste of material or time may go on, of which he knows nothing, and which might increase his profits still further if it were stopped. It sometimes happens that these over-confident people are the greatest enemies of themselves.

There is the man who says that it would cost too much to install and to operate. A great deal depends on how it is installed, and as to how he arranges its operation. Probably if he really inquires he will find that the cost of installation is small compared with the wastage going on in his business, and when compared with the loss of profits through working in the dark and guessing at his costs. He will also find in all probability that he can run a simple and efficient costing system quite economically, if he studies carefully the organization of his plant and staff.

There is the man who objects to a costing system as more "red tape." Of course, if he is thinking of a flood of fresh forms, very complicated and keeping the foremen so busy filling in records so that they cannot get on with their proper jobs—if he is thinking of a system so complicated that it will not work, I am not. I prefer a costing system to be as simple as possible, and I have already referred to the incorporation of old forms in a new system so far as can possibly be done. Some costing systems fail through over elaboration; but that is a fault which the experienced cost accountant will studiously avoid.

In point of fact, the installation of a properly planned and efficiently operated system of cost accounts usually means the elimination of unnecessary forms, and numerous short cuts, for the summarizing of costing data for accounting and other purposes.

Paper Prices Firmer In Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., September 17, 1928.—With some few upward revisions in the price of paper, some of the leaders of the local jobbing trade believe they can see some general price revisions forecast for the end of the month as industry gets under full speed following the usual summer dull period. The changes at present are not marked or numerous, but they are said to show the trend. Just now there is a little more activity among the printing crafts than there has been for some time. Their buying is of a cautious nature, however, and most of the larger printing houses seem content to await until a more accurate analysis can be made of the fall business.

There is more demand now for building papers in this state than there was during the summer. The outlook for these this fall, particularly in the rural districts, is good. Prices on felts, sheathing papers and roofings are firm with no attempt being made to secure business via the concession route.

Papers going to the paper box industry are very active and business with these factories is inclined upward. In fact, the outlook, according to executives, is considerably better than it was at this time last year.

The department store buyers are cautious in their ordering but the outlook is good for this fall. Manufacturers of confectionery and other users of glassine papers are more actively in the market than for a month past and orders now are being put up for the holiday trade.

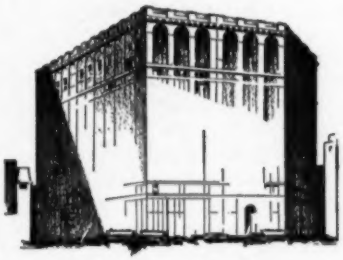
Through it all, however, the tendency of the buyer is toward conservatism and no attempt is being made, because of relatively low prices, to lay in stocks that may not be moved with ease.

Whitaker Paper Co. to Build at Pittsburgh

PITTSBURGH, Pa., October 1, 1928.—As a site for a warehouse to cost about $200,000, the Whitaker Paper Company has bought a tract of approximately 80,000 square feet in the south side of Beaver avenue, North Side, on which it plans to erect an attractive, modern concrete building.

The site, which was acquired from the Stevenson estate heirs, is situated between the warehouse properties of the Rosenbaum Company and Donahoe's, Inc. It fronts 140 feet in Beaver avenue, near the foot of Western avenue and extends back to the railroad right of way, 508 feet on one side and 576 on the other, its exact area being 76,320 square feet. A strip containing 2,476 square feet lying beyond the railroad right of way and extending south to the Ohio river is included in the conveyance.

The property purchased was at one time occupied by the McClure Lumber Company. It is transferred to the new owner in two deeds, one given by David L. Patterson and other heirs for a consideration of $82,500, and the other by Theodore Wood Friend for a consideration of $37,500.



Buyers flock to 200 Fifth Avenue

famous throughout the mercantile world

From every section of America, and from foreign countries, buyers come to the Fifth Avenue Building. Because in this building, on one buying trip, they can fill the greater part of their seasonal requirements. The offices and display rooms of leading manufacturers are to be found here. Men's wear, women's wear, fabrics, gloves, gifts, toys, novelties, pottery, paper and kindred lines are represented.

The Fifth Avenue Building is accessible from any part of the city. Buses and surface cars pass the door. Two elevated lines are nearby. It is ten minutes by subway from the Pennsylvania Station, thirteen from Grand Central. It is a few minutes from the shopping district in one direction, from the financial district in another.

THE FIFTH AVENUE BUILDING

Broadway and Fifth Avenue, at Madison Square, New York

"More than an office building"

RHOADS TANNATE WATERSHED LEATHER BELTING

WHY HE IS SOLD ON RHOADS TANNATE

"YOU don't have to praise your Tannate Belt to me any more," replied a Wisconsin paper mill superintendent to a Rhoads representative in 1926. He then added, "As you may see from your records we have invested about $5,000 in Tannate to date. (Bought their first Tannate Belt, Oct. 1924.) As far as lasting qualities are concerned some of them have already paid for themselves. *But here is something that has impressed me.* We are keeping an exact record of shut-downs and the causes. During 1923 when we did not have a Tannate Belt in the place, we were using rubber and some oak belts, our shut-downs on account of belt troubles amounted to 60 hours. During the past six months when *all cone and Pump drives are Tannate* we have not lost five minutes on account of belt troubles. It costs us about $40 per hour when we have to shut down."

That was said about two years ago. In the meantime they have added $1500 more to their Tannate equipment, covering 22 belts—and only three of these are for replacement of Tannate Belts.

$5,000 during a fifteen months period as rubber and oak belts needed replacement; $1500 during the succeeding two-year period!

Such a showing can only mean lower belt cost and lower up-keep and greater output which means more economical production costs.

May we help you in the same way, under the Rhoads broad SERVICE GUARANTEE?

J. E. RHOADS & SONS

Philadelphia - 37 N. Sixth St.
New York—104 Beekman St. Atlanta—70 Forsyth St. S. W.
Chicago—24 N. Clinton St. Cleveland—1224 W. Ninth St.
Factory and Tannery, Wilmington, Del.

New York Trade Jottings

International Paper Company, New York, declared regular quarterly dividend of 60 cents on common, payable November 15 to stock of record November 1.

* * *

The Gotham Card and Paper Company announce the removal of their office and warehouse from 721 Newark avenue to their own bulding at 41-43 Oakland avenue, Jersey City.

* * *

Walter H. Martens, associate manager of the mill supply department of George H. Millar & Co., Inc., 284 Lafayette street, New York, recently returned from Europe after a long business trip.

* * *

Oliver M. Porter, secretary of the American Paper and Pulp Association, 18 East 41st street, New York, is attending the fall meeting of the National Paper Trade Association, at Chicago, Ill., this week.

* * *

William Gillespie, of the Bogalusa Paper Company, Bogalusa, La., sailed from New York for Sweden last week and will study the production of sulphate pulp as an industrial fellow of the Sverige-Amerika Stiftelsen.

* * *

Corn Products Refining Company, New York, declared regular quarterly dividends of 50 cents on common and $1.75 on preferred. Common dividend is payable October 20 to stock of record October 5 and preferred payable October 15 to stock of record October 5.

* * *

The New York Collector of Customs has been advised by the Treasury that imported cotton rags, suitable only for remanufacture, should be admitted duty free as junk under paragraph 1601, tariff act of 1922. A former ruling by the Treasury, fixing duty at 10 per cent, is revoked.

* * *

The Missisquoi Pulp and Paper Company, of Sheldon Springs, Vermont, announces that the New York office at 2008 Graybar Building is now in charge of H. E. Lindquist, vice-president. E. W. Mantz, who has represented the company efficiently in the New York territory, has announced his resignation, effective October 1, 1928.

* * *

G. G. Khramtzoff, chief engineer, E. G. Goryatcheff, vice president, and E. A. Kayatz, consulting engineer of the Central Paper Trust of the U. S. S. R., have arrived in New York to complete negotiations for the purchase of over $500,000 worth of paper machinery in this country for the new Balakhna Mill on the Volga River. The Central Paper Trust is the largest paper combine in the Soviet Union, accounting for about 30 per cent of the total paper and cardboard output and for over 80 per cent of the cellulose production.

* * *

M. M. Elish & Co., Inc., of 29 Beekman street, New York, in business since 1898, announces a new department of Bond and Ledger Papers, ranging from standard sulphite grades to the best all-rag papers. The Bond line consists of five house brands, namely Extrong, Snow-White, Authority, Eureka, Carold and the Hollingsworth & Whitney standard brand of Hollingsworth Bond, as well as the Harding-Jones Paper Company standard mill brands: All American, National Linen and Hornet. The Ledger line consists of three house brands, namely, Snow-White, Curt Woven, Roland Linen, also the new standard watermarked line of Hollingsworth & Whitney, as well as the Harding-Jones Paper Company standard mill brands which are known as Treasury Linen and Hornet Linen.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 1, 1928.—The Arnold-Roberts Company is issuing each month "Westvaco Inspirations for Printers." The outside of the covers of these brochures is in colors and the inside is white. No. 37 contains line engravings and combination line and Ben Day engravings, on Westvaco Inspiration Machine Finished Book, White; Ben Day, line and Ben Day, half-tones and two-color half-tones on Westvaco Inspiration Super Calendered Book, India; half-tones, four-color process half-tones and line on Velvo-Enamel.

The Arnold-Roberts Company has become exclusive agent for Laidtone Letter, "brilliantly colorful duplex coated paper that joins Laidtone Book, Translucent and Cardboard in making advertising more effective," made by the A. M. Collins Manufacturing Company, Philadelphia. On one side of the paper is Laidtone White, and on the other a choice of brilliant Blue, Orange, Yellow or Buff. On both sides is the modern trend in paper, the semi-dull coated with the laid effect. The Arnold-Roberts Company carries these lines in warehouses in Boston, Providence, Augusta, New Haven and Springfield.

The Old Colony Engraving Company, converters of the Old Colony Weddings, of which Carter Rice & Co. Corporation is New England distributor, have discontinued the Housatonic, Danish, and Initial Vellum lines of Weddings, that have been on the market some time and are offering new ones, called Mozart, Mendelssohn, and Lohengrin. The sizes are designated in terms of music: Prelude, Fantasy, Caprice, Largo, Sonata, Etude, Minuet, and Allegro. These lines are put up in the new combination chest of 100 outside and inside envelopes, and 104 sheets. The sheets are packed separately in a box which is fitted into the outside box holding the envelopes. The envelopes can be delivered in the large box and the sheets sent to the engraver or printer, who in turn has a box to match in which to deliver them.

The C. A. Esty Paper Company, of Boston and Worcester, is distributing Milano and Sarouk, new lines of their added Linweave Announcement.

The following members of the trade left Saturday evening to attend the convention of the National Paper Trade Assocation held in Chicago this week: A. W. Blackman, of D. F. Munroe Company, a member of the board of directors of the National Paper Trade Association; M. O. Byrne, of Whitney Bros., Inc., president of the New England Paper Trade Association; Hubert L. Carter, of Carter Rice & Co., Corporation, member of the New England Paper Trade Association; C. A. Esty, of the Chas. A. Esty Paper Company, Worcester and Boston, chairman of the Fine Paper Survey Committee of the National Paper Trade Association; C. A. Shaw, of Whitney Bros., chairman of the National Twine Committee, and William B. Stevenson, of Storrs & Bement, a member of the board of directors.

Guy P. Hunter, formerly in charge of the Boston sales office of the Fred L. Tower Company, printers, Portland, Me., has taken a position as sales service manager for Storrs & Bement.

T. C. Greene, of the T. C. Greene Paper Company, has returned from a week's vacation, in which he took a motor trip through Vermont to Montreal and Quebec, returning through Maine. He was accompanied by Mrs. Greene.

D. K. Cheney, formerly of the Dickerman Box Company, this city, has taken a position as salesman for Munro & Church Company.

Ernest L. Boyd, formerly with the Carter Rice & Co. Corporation, and A. J. Nestor, who has had experience with several paper houses in Boston, have taken positions as salesmen for the Arnold-Roberts Company.

C. V. Moross, formerly of Blake, Moffatt & Towne, San Francisco, has formed the Moross Paper Company, and is in Boston and New England, making mill connections.

BOLTON QUALITY

JOHN W. BOLTON & SONS, INC.

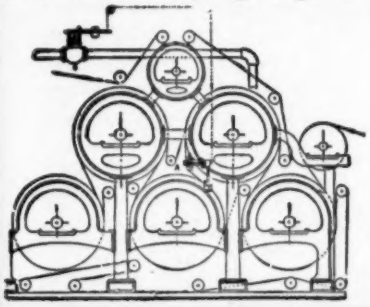
EAGLE KNIFE & BAR WORKS

Lawrence, Mass.

The only firm making KNIVES for every machine from wood pile to finishing room.

It's the KNIVES that do the work!

The Pickles Drying Regulator



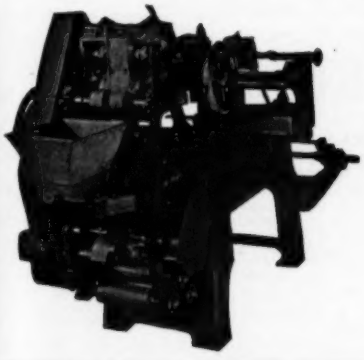
WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**



HIGHEST SPEED

Paper Bag Machinery

Get My Quotations Before Placing Your Orders

Special Machinery Designed and Built

A. L. PARRISH

1702 Robinson St., South Bend, Ind.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company

PROVIDENCE, R. I.

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 29, 1928

SUMMARY

Cigarette paper	67 cs.
Wall paper	3 pkgs., 44 bls., 2 cs.
Paper hangings	21 bls., 18 cs.
News print	973 rolls
Printing paper	6 bls., 123 cs.
Printed paper	2 cs.
Wrapping paper	1 roll, 50 bls., 35 cs.
Packing paper	14 cs.
Colored paper	29 cs.
Tissue paper	65 cs.
Decalcomania paper	70 cs.
Baryta coated paper	267 cs.
Surface coated paper	116 cs.
Metal coated paper	6 cs.
Silk paper	6 cs.
Gold coated paper	4 cs.
Glass paper	3 cs.
Crepe paper	17 cs.
Grease proof paper	4 cs.
Cellophane paper	1 cs.
Writing paper	12 cs.
Writing paper and envelopes	2 cs.
Filter paper	15 cs.
Drawing paper	30 cs.
Cable paper	4 rolls
Basic paper	37 cs.
Paper boxes	8 cs.
Miscellaneous paper	204 rolls, 217 bls., 99 cs.

CIGARETTE PAPER

British American Tobacco Co., Aquitania, Southamoton, 67 cs.

WALL PAPER

J. E. Bernard & Co., Cleveland, Hamburg, 1 bls.
F. J. Emmerich, Cleveland, Hamburg, 4 bls.
F. J. Emmerich, Adriatic, Liverpool, 2 bls., 1 cs.
J. E. Bernard & Co., Resolute, Hamburg, 37 bls.
Freedman & Slater, Resolute, Hamburg, 3 pkgs.
Hudson F'd'g Co., Aquitania, Southampton, 1 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Caronia, London, 21 bls., 5 cs.
W. H. S. Lloyd & Co., Laconia, Liverpool, 13 cs.

NEWS PRINT

Journal of Commerce, Dresden, Bremen, 89 rolls.
Parsons & Whittemore, Inc., Dresden, Bremen, 644 rolls.
Gilman Paper Co., Ulvo, Norrkoping, 148 rolls.
H. Reeve Angel & Co., Inc., Pr. Harding, Bremen, 12 rolls.
A. S. Zabriskie, Pr. Harding, Bremen, 80 rolls.

PRINTING PAPER

C. A. Redden, Inc., Caronia, London, 6 bls.
Martin & Bechtold, America, Bremen, 12 cs.
P. C. Zuhlke, Belgenland, Antwerp, 50 cs.
Judson Freight F'd'g Co., Belgenland, Antwerp, 15 cs.
Oxford University Press, Laconia, Liverpool, 2 cs.
Kupfer Bros., Pr. Harding, Bremen, 17 cs.
Judson Freight F'd'g Co., Pr. Harding, Bremen, 25 cs.
F. C. Strype, N. Amsterdam, Rotterdam, 2 cs.

PRINTED PAPER

Pitt & Scott, American Banker, London, 2 cs.

WRAPPING PAPER

J. H. Schroeder Banking Corp., Cleveland, Hamburg, 6 cs.
Birn & Wachenheim, Belgenland, Antwerp, 26 cs.
F. C. Strype, Belgenland, Antwerp, 3 cs.
Standard Products Corp., Belgenland, Antwerp, 1 roll.
T. D. Downing & Co., Marengo, Antwerp, 50 bls.

PACKING PAPER

Universal Car Loading Co., Dresden, Bremen, 12 cs.
Calhoun Robbins & Co., Resolute, Hamburg, 2 cs.

COLORED PAPER

Van Oppen & Co., Cleveland, Hamburg, 1 cs.
S. Gilbert, Pr. Harding, Bremen, 24 cs.
Phoenix Shipping Co., Pr. Harding, Bremen, 4 cs.

TISSUE PAPER

Old Master Paper & Pulp Corp., Cleveland, Hamburg, 61 cs.
Meadows Wye & Co., Laconia, Liverpool, 4 cs.

DECALCOMANIA PAPER

C. W. Sellers, Cleveland, Hamburg, 9 cs.
B. F. Drakenfeld & Co., Adriatic, Liverpool, 41 cs.
Martin & Bechtold, America, Bremen, 3 cs.
C. W. Sellers, Resolute, Hamburg, 4 cs.
L. A. Consmiller, Resolute, Hamburg, 6 cs.
S. W. Sellers, Pr. Harding, Bremen, 7 cs.

BARYTA COATED PAPER

Globe Shipping Co., Dresden, Bremen, 143 cs.
Globe Shipping Co., Pr. Harding, Bremen, 48 cs.
J. H. Schroeder Banking Corp., Pr. Harding, Bremen, 76 cs.

SURFACE COATED PAPER

Globe Shipping Co., Cleveland, Hamburg, 8 cs.
T. D. Downing & Co., Cleveland, Hamburg, 1 cs.
Whiting & Patterson Co., Inc., Cleveland, Hamburg, 4 cs.
P. C. Zuhlke, Belgenland, Antwerp, 49 cs.
Gevaert Co. of America, Belgenland, Antwerp, 44 cs.
Whiting & Patterson Co., Inc., Resolute, Hamburg, 8 cs.
Phoenix Shipping Co., Resolute, Hamburg, 2 cs.

METAL COATED PAPER

Universal Car Loading Co., Cleveland, Hamburg, 6 cs.

SILK PAPER

Whiting & Patterson Co., Inc., N. Amsterdam, Rotterdam, 6 cs.

GOLD COATED PAPER

F. Murray Hill Co., Dresden, Bremen, 4 cs.

GLASS PAPER

Thomas & Pierson, Minnekahda, London, 3 cs.

CREPE PAPER

L. Greenberg & Son, Resolute, Hamburg, 7 cs.
J. Beckhard & Co., Pr. Harding, Bremen, 10 cs.

GREASE PROOF PAPER

Central Union Trust Co., Resolute, Hamburg, 4 cs.

CELLOPHANE PAPER

M. J. Corbett, Aquitania, Southampton, 1 cs.

WRITING PAPER

The Eleto Co., De Grasse, Havre, 6 cs.
Globe Shipping Co., De Grasse, Havre, 4 cs.
Guibout freres, Aquitania, Southampton, 2 cs.

WRITING PAPER AND ENVELOPES

Gimbel Bros., American Banker, London, 2 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Caronia, London, 9 cs.
H. Reeve Angel & Co., Inc., Homeric, Southampton, 6 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Caronia, London, 10 cs.
International F'd'g Co., Mercier, Antwerp, 20 cs.

CABLE PAPER

Western Electric Co., America, Bremen, 4 rolls.

BASIC PAPER

American Express Co., Belgenland, Antwerp, 37 cs.

PAPER BOXES

C. A. Redden, Cleveland, Hamburg, 8 cs.

MISCELLANEOUS PAPER

C. K. MacAlpine & Co., Drottningholm, Gothenburg, 196 rolls, 192 bls.
H. D. Catty & Co., De Grasse, Havre, 4 cs.
Globe Shipping Co., De Grasse, Havre, 3 cs.
G. W. Sheldon & Co., Caronia, London, 2 cs.
American Express Co., Belgenland, Antwerp, 5 cs.
R. Wilson Paper Corp., California, Glasgow, 8 rolls.
P. J. Schweitzer, Ile de France, Havre, 8 cs.
Keller Dorian Paper Co., Ile de France, Havre, 19 cs.
Walker Goulard Plehn Co., Resolute, Hamburg, 25 bls.
F. C. Strype, Beemsterdyk, Rotterdam, 5 cs.
H. W. Robinson & Co., Pr. Harding, Bremen, 1 cs.
Globe Shipping Co., N. Amsterdam, Rotterdam, 52 cs.

RAGS, BAGGINGS, ETC.

Chase National Bank, United States, Copenhagen, 1,545 bls. rags.
Darmstadt, Scott & Courtney, Collamer, Dunkirk, 49 bls. rags.
Castle & Overton, Inc., Collamer, Havre, 177 bls. bagging.
Chase National Bank, Cleveland, Hamburg, 40 bls. rags.
W. Steej & Co., City of Alton, Rotterdam, 13 bls. cotton waste.
W. Loewenthal & Co., City of Alton, Rotterdam, 8 bls. rags.
Bank of The Manhattan Co., Winona, Tunis, 137 bls. rags.
Guaranty Trust Co., Winona, Leghorn, 45 bls. rags.
U. S. Forwarding Co., Caronia, London, 15 bls. rags.
J. Cohen Son, Inc., Caronia, London, 25 bls. rags.
Myers Lipman Woolstock Co., Caronia, London, 9 bls. rags.
B. D. Kaplan & Co., Caronia, London, 33 bls. rags.
A. W. Fenton, Inc., America, Bremen, 5 bls. rags.
W. Schall & Co., America, Bremen, 112 bls. bagging.
National City Bank, Mercier, Antwerp, 70 bls. rags.
Castle & Overton, Inc., Mercier, Antwerp, 77 bls. rags; 56 bls. bagging.
T. D. Downing & Co., California, Glasgow, 53 bls. paper stock.
Brown Bros. & Co., California, Glasgow, 61 bls. rags.
Castle & Overton, Inc., California, Glasgow, 58 bls. paper stock.
Bank of The United States, Tomalva, Antwerp, 23 bls. rags.
Darmstadt, Scott & Courtney, Tomalva, Antwerp, 115 bls. jute waste.
Star Woolen Co., Tomalva, Antwerp, 12 bls. rags.
G. W. Millar & Co., Marengo, Newcastle, 99 bls. bagging.
Whaling Waste Products Co., Marengo, Hull, 118 bls. cotton waste.
Darmstadt, Scott & Courtney, Marengo, Hull, 75 bls. bagging.
Castle & Overton, Inc., Marengo, Hull, 40 bls. flax waste.
Chemical National Bank, Marengo, Hull, 129 bls. bagging.
Overton & Co., Marengo, Hull, 218 bls. rags.
Green, Hamilton & Co., Wytheville, Rotterdam, 75 bls. cotton waste.
Chase National Bank, Resolute, Hamburg, 59 bls. flax waste.
Castle & Overton, Inc., Beemsterdyk, Rotterdam, 547 bls. bagging.
Darmstadt, Scott & Courtney, Beemsterdyk, Rotterdam, 46 bls. bagging.
1st National Bank, Beemsterdyk, Rotterdam, 234 bls. cotton waste.
P. Berlowitz, Beemsterdyk, Rotterdam, 65 bls. rags.
W. Schall & Co., Pr. Harding, Bremen, 186 bls. bagging.
P. Berlowitz, N. Amesterdam, Rotterdam, 27 bls. fustians; 22 bls. bagging.
Sanitary Bag Co., N. Amsterdam, Rotterdam, 126 bls. rags.
C. R. Spence, Boston City, Bristol, 176 bls. rags.
E. Butterworth & Co., Inc., Bannack, Manchester, 65 bls. bagging.
Darmstadt, Scott & Courtney, Bannack, Manchester, 178 bls. bagging.
Leigh Textile Co., Bannack, Manchester, 224 bls. cotton waste.

OLD ROPE

E. J. Keller Co., Inc., United States, ——, 198 coils.
E. J. Keller Co., Inc., Carnia, ——, 205 coils.
Brown Bros. & Co., Belgenland, Antwerp, 52 bls.
Brown Bros. & Co., Marengo, Newcastle, 99 coils.
Brown Bros. & Co., Beemsterdyk, Rotterdam, 118 coils.
American Exchange Irving Trust Co., Beemsterdyk, Rotterdam, 95 coils.
W. Steck & Co., Beemsterdyk, Rotterdam, 48 coils.

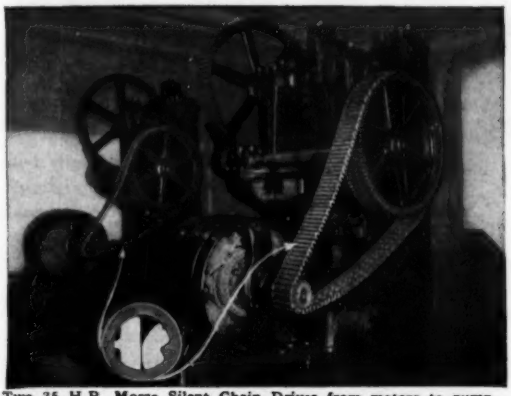
CASEIN

Equitable Trust Co., Collamer, Havre, 361 bags, 35,050 kilos.
Kalbfleisch Corp., Pan America, B. Aires, 250 bags.
Champion Coated Paper Co., Pan America, B. Aires, 582 bags.

WOOD PULP

Atterbury Bros., Inc., United States, Oslo, 1,000 bls. wood pulp, 200 tons.
Chase National Bank, United States, Oslo, 400 bls. sulphite, 50 tons.
E. J. Keller Co., Inc., Cleveland, ——, 510 bls. wood pulp, 78 tons.
M. Gottesman & Co., Inc., City of Alton, Rotterdam, 650 bls. sulphite.
M. Gottesman & Co., Inc., Ulvo, Sundsvall, 600 bls. sulphite, 100 tons.

(*Continued on page 76*)



Two 25 H.P. Morse Silent Chain Drives from motors to pump. Drivers, 900 r.p.m. Driven, 155 r.p.m., 42 inch centers.

11 Years--Driving Pumps

Frequent starts and stops under load of high pressure, impose severe service on this pump power transmission. But Morse Silent Chain Drives were used and, after 11 years of satisfactory service were replaced by new Morse Drives. Transmitting power between parallel shafts, Morse Drives give sure power for machinery of various types. They are 98.6% efficient, positive, flexible. One tenth to 5,000 H.p., 6,000 to 250 r.p.m. and slower, ideal for short centers. Ask for descriptive literature on the improved type No. 55 Morse Chain.

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Denver, Colo.
Detroit, Mich.
Greenville, S. C.
Louisville, Ky.
Minneapolis, Minn.
Newark, N. J.
New Orleans, La.
New York, N. Y.
Omaha, Neb.
Philadelphia, Pa.
Pittsburgh, Pa.
San Francisco, Calif.
St. Louis, Mo.
Toronto, 2, Ont., Canada
Winnipeg, Man., Canada

MORSE SILENT CHAIN DRIVES

Acid water troublesome in your mill?

First of all you use Quartz Quality silicate in the beater to make a better sheet of paper. But like many good things, the advantages of Quartz Quality silicates come in 3's.

If the white water in your mill is excessively acid, you should know how Quartz Quality is helping many mills overcome this condition. No mystery, just chemistry.

Likewise the regular use of Quartz Quality silicate in the beater softens the water and keeps the pipe lines clean.

Ask for further information about water treatment with Quartz silicates.

Philadelphia Quartz Company
Philadelphia

PQ

Quartz Quality Silicates

THE NEW FLATHER MACHINE

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Waxing - Oiling - Coating
and
Saturating

is guaranteed to give you the best finish, biggest production, least trouble and most satisfaction of any equipment on the market today.

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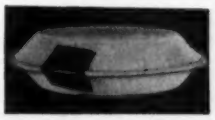
A pie plate that revolutionized an industry

One big pie manufacturer recently rebuilt his trucks in order to deliver his pies on Paprus Plates rather than tins. Everywhere bakers are realizing the advantages of Paprus Pie Plates. Moulded from pulp—not pressed from paper. Paprus Pie Plates are the only absorbent pie plates that absorb and retain their shape. Get your share of the business in Paprus Pie Plates. Write for Price List.

Paprus Pie Plates used as covered container



PAPRUS PIE PLATES

KEYES FIBRE COMPANY, INC.
General Sales Offices: GRAYBAR BLDG., NEW YORK
Factory: Waterville, Me. JOHN M. HART COMPANY, INC., *Manager of Sales*

Imports of Paper and Paper Stock

(*Continued from page 74*)

Scandinavian Pulp Agency, Inc., Ulvo, Sundsvall, 275 bls. sulphite, 60 tons.
Scandinavian Pulp Agency, Inc., Ulvo, Skutskar, 125 bls. wood pulp.
Chemical National Bank, Bockenheim, Iggesund, 541 bls. sulphate, 108 tons.
M. Gottesman & Co., Inc., Bockenheim, Iggesund, 750 bls. sulphate, 150 tons.
Bulkley, Dunton & Co., Bockenheim, ——, 1,175 bls. sulphite, 235 tons.
Johanson, Wales & Sparre, Inc., Pr. Harding, Bremen, 135 bls. wood pulp, 24 tons.
Castle & Overton, Inc., Beemsterdyk, Rotterdam, 874 bls. wood pulp.

WOOD PULP WADDING

Birn & Wachenheim, Beemsterdyk, Rotterdam, 50 bls.

WOOD PULP BOARDS

International F'd'g Co., Cleveland, Hamburg, 11 bls.

BALTIMORE IMPORTS

WEEK ENDING SEPTEMBER 29, 1928

Guaranty Trust Co., Winona, Leghorn, 54 bls. rags.
Parsons & Whittemore, Inc., Bockenheim, Kopmanholen, 305 bls. wood pulp, 50 tons.
Perkins, Goodwin & Co., Bockenheim, Kopmanholen, 915 bls. wood pulp, 152 tons.
M. Gottesman & Co., Inc., Bockenheim, Iggesund, 1,275 bls. sulphite, 255 tons.
Bulkley Dunton & Co., Bockenheim, ——, 350 bls. sulphite, 70 tons.
Castle & Overton, Inc., C. F. Liljevalch, Antwerp, 222 bls. rags.

NORFOLK IMPORTS

WEEK ENDING SEPTEMBER 29, 1928

E. J. Keller Co., Inc., Ambridge, ——, 60 bls. rags.

BOSTON IMPORTS

WEEK ENDING SEPTEMBER 29, 1928

C. H. Powell & Co., City of Alton, Rotterdam, 806 rolls straw boards.
Spaulding Fibre Co., Tomalva, Antwerp, 785 bls. flax waste
E. Butterworth & Co., Inc., Tomalva, Antwerp, 295 bls. flax waste.
American Express Co., Tomalva, Antwerp, 94 rolls paper.
National Shawmut Bank, Tomalva, Antwerp, 42 bls. rags.
G. F. Malcolm & Co., Laconia, Liverpool, 19 cs. tissue paper.
American Exchange Irving Trust Co., Bockenheim, Hernosand, 4,800 bls. sulphate, 812 tons.
Parsons & Whittemore, Inc., Bockenheim, Kopmanholen, 610 bls. wood pulp, 101 tons.
Bulkley, Dunton & Co., Bockenheim, ——, 1,350 bls. sulphite, 210 tons.

PHILADELPHIA IMPORTS

WEEK ENDING SEPTEMBER 29, 1928

G. W. Millar & Co., Collamer, Dunkirk, 46 bls. rags.
Bank of The Manhattan Co., Collamer, Havre, 59 coils old rope.
Castle & Overton, Inc., Collamer, Havre, 242 bls. rags.
Union Bank & Trust Co., Collamer, Havre, 82 bls. old rope.
G. W. Millar & Co., Collamer, Havre, 45 bls. rags.
Katzenstein & Keene, Inc., Collamer, Havre, 50 bls. rags.
Strawbridge & Clothier, Collamer, Havre, 2 cs. writing paper.
Castle & Overton, Inc., City of Alton, Rotterdam, 338 bls. rags.
J. A. Steer & Co., City of Alton, Rotterdam, 80 rolls straw boards.
S. Birkenstein & Sons, Winona, Marseilles, 219 rolls old rope.
Phila. National Bank, Winona, Marseilles, 207 bls. rags.
Castle & Overton, Inc., Saucon, Smyrna, 684 bls. rags.
L. H. Abenheimer, Carnia, Naples, 150 bls. rags.
Katzenstein & Keene, Inc., Tomakva, Antwerp, 235 bls. rags.
Castle & Overton, Inc., Tomakva, Antwerp, 1,061 bls. rags.
True & McClelland, Tomakva, Antwerp, 72 bls. rags.
J. B. Moors & Co., Tomakva, Antwerp, 13 bls. rags; 59 bls. bagging.
Equitable Trust Co., Tomakva, Antwerp, 47 bls. rags.
Lagarius & Co., Tomakva, Antwerp, 83 bls. rags.
Chemical National Bank, Tomakva, Antwerp, 169 bls. rags.
M. Friedman & Co., Tomakva, Antwerp, 97 bls. rags.
G. W. Millar & Co., Tomakva, Antwerp, 79 bls. rags.
E. J. Keller Co., Inc., Tomakva, Antwerp, 119 bls. rags.
E. Butterworth & Co., Tomakva, Antwerp, 120 bls. rags.
Price & Pierce, Ltd., Bockenheim, Ohrviken, 4,800 bls. wood pulp, 800 tons.
Chemical National Bank, Bockenheim, Iggesund, 650 bls. sulphate, 130 tons.
J. Andersen & Co., Bockenheim, Iggesund, 80 bls. sulphate, 10 tons.
J. A. Steer & Co., Boston City, Bristol, 76 coils old rope.
T. D. Downing & Co., Boston City, Bristol, 81 bls. bagging.
Bank of The Manhattan Co., Boston City, Bristol, 162 bls. rags.
J. W. Hampton, Jr., & Co., Boston City, Bristol, 416 tons china clay.
E. J. Keller Co., Inc., Binnendyk, ——, 99 bls. rags.
E. J. Keller Co., Inc., London Exchange, ——, 91 bls. rags.
E. J. Keller Co., Inc., Hamburg Maru, ——, 300 bls. rags.
Castle & Overton, Inc., London Shipper, Ireland, 102 bls. rags.
Castle & Overton, Inc., West Harcuvar, Germany, 64 bls. rags.
Castle & Overton, Inc., Burgerdyk, Germany, 126 bls. rags.
Castle & Overton, Inc., London Exchange, England, 50 coils old rope; 352 bls. rags.

Slight Decrease in German Paper Production

WASHINGTON, D. C., October 3, 1928.—Paper manufacture in Germany during the second quarter of 1928 amounted to 509,273 metric tons (metric ton equals 2,205 pounds) as against 521,931 tons duriing the preceding quarter, chemical pulp to 277,498 tons as against 280,948 tons, and mechanical pulp to 209,322 tons as against 215,131 tons, according to figures published by the Central Committee of the Paper Board, and Pulp Industry, Trade Commissioiner William T. Daugherty, Berlin, advises the Department of Commerce. Board production, on the other hand, increased slightly (from 108,171 tons to 110,253 tons).

The leading reasons given for the decline in the second quarter's output are the higher production costs, against more or less stable prices, and the fact that the domestic market has reached the point of saturaton. Production during the first period also was undoubtedly favorably influenced by the strike in the Swedish industry.

H. W. Verow Goes To Mount Holly Springs

MOUNT HOLLY SPRINGS, Pa., September 25, 1928.—Henry W. Verow, formerly connected with the Eastern Manufacturing Company, has accepted the position of superintendent of the Mount Holly Paper Company of Mount Holly Springs, Pa. Mr. Verow is a competent paper maker, and brings to his new duties a thorough knowledge of machine and air dried bonds and ledgers in which the Mount Holly Paper Company will specialize.

Container Corp. Reports

Net profit of the Container Corporation of America and subsidiaries for the six months ended June 30 was $716,345, after all charges. The company's total assets were $26,060,389 June 30, compared with $19,881,990 on December 31, 1927. Total liabilities were $26,069,389 against $20,881,990 respectively.

Arthur T. Robb, Jr., Addresses Salesmen

Arthur T. Robb, Jr., managing editor of the *Editor and Publisher*, was the guest speaker at the regular weekly meeting and luncheon of the New York Division of the Salesmen's Association of the Paper Industry, held at the Canadian Club last Monday.

Mr. Robb presented the publisher's point of view on the news print situation and declared that confidence was needed on both sides. He expressed the view that the publishers did not want to see the news print prices cut to any extent as cheaper paper would naturally bring wild cat opposition in many cities.

Mr. Robb discussed the trends of advertising and circulation comprehensively and expressed his belief that consumption of news print would not expand materially during the next three years, at least. An interesting discussion followed Mr. Robb's address, which was greatly appreciated by all privileged to hear it.

A. P. W. Paper Co. Sells Warehouse

ALBANY, N. Y., October 1, 1928.—The warehouse at Colonie and Rathbone streets, erected and occupied for some time by the A. P. W. Paper Company was sold this week to G. C. Reardon Inc. by the Perkins Corporation. The warehouse, which is six stories in height having a floor space of 24,000 square feet was used by the A. P. W. Company in connection with its original plant in Colonie street. When the present large mill in North Albany was erected the warehouse was abandoned by the paper company and put on the market.

Now Menasha Products Co.

George H. Gardner, treasurer of the former Menasha Printing and Carton Company, writes, "In the last issue of the PAPER TRADE JOURNAL our new name was given as the Wisconsin Products Company. The new name is the Menasha Products Company."

For reliable running and average long life

LINDSAY FOURDRINIER WIRES

are unsurpassed

We make them for the largest and fastest machines.

Cylinder Wires All Sizes

The Lindsay Wire Weaving Co.

Collinwood Sta. CLEVELAND, OHIO

PARSONS & WHITTEMORE

Incorporated

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WOODPULP

Foreign Domestic

Sole Selling Agents for

BENGTSFORS "CORONA"

Bleached Sulphite Pulp

Especially adapted for Rag and Absorbent Papers

CHRISTIE "Ruby Metal" Paper Machine Wires

Kalamazoo Representative
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Prompt deliveries made from stocks in
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PAR In Dyestuffs

As every golfer knows par is a standard of excellence. It is a good term to apply to Heller & Merz dyestuffs. They are par dyestuffs because they represent the excellence which exacting users demand.

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ENGINEERS

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Ferguson customers include:

Hinde & Dauch Co.
A. P. W. Paper Co.
Mead Pulp and Paper Co.
Chillicothe Paper Co.
Warren Mfg. Co.
Spencer-Wynne Paper Products Company
Bennington Wax Paper Company
Oswego Falls Corp.
Fairfield Paper Co.

THE H. K. FERGUSON COMPANY
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New York • Detroit • Birmingham • Tokio, Jap—

Ferguson
ENGINEERS

Paper Mill Stocks and Bonds

Quoted by Taylor & White, 45 Wall street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power & Paper 5s, 1943	90	91
Abitibi Power & Paper 6s, serially to 1934	100	102
American Writing Paper 6s, 1947	81	87
Bastrop Pulp & Paper 6½s, 1940	103	105½
Bedford Pulp & Paper 6½s, 1942	97	100
Belgo-Canadian Paper 6s, 1943	100	103
British-Columbia Pulp & Paper 6s, 1950	89	92
Brown Paper Mills Serial 6s, 1941	97	100
Brown Company 5½s, 1946	98	101
Bryant Paper 6s, 1942	98	101½
Canadian Paper Board 7s, 19337	97	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	95	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago, Debenture 6s, 1936	95	98
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	78	...
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	95	...
Champion Paper Corp. 6s, 1945	95	98
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	90	99
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	101	102
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	80	...
Donnaconna Paper 5½s, 1948	93	...
Eastern Manufacturing Co. 7s, 1938	97	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Irange Paper 7s, 1942	101	...
Fort William Paper 6s, 1946	100	104
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	100	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	94	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
International Paper 6s, 1955	102	103
International Paper 5s, 1947	98	100
Itasca Paper & Prairie River Power Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Power Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	83	90
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Paper 6s, 1941	105	108
Marathon Paper Mills Serial 5½s, 1942	99	101
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	97	101
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper Serial 6½s, 1947	102	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1928-42	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswego Falls Corp. 6s, 1941	99	102
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 5½s, 1947	98	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Queen City Paper 7s, 1933	98	...
River Raisin Paper 6s, 1936	98	100
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Maurice Valley Corp. 6s, 1945	101	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s,, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	102
Smith (Howard) Paper Mills 7s, 1941	104	106
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	101	103½
Waterway Paper Products 6s, 1931	100	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parson Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P. Pfd.	65	75
Brompton Pulp & Paper, 8% Pfd.	100	...
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Pfd.	92	97
Eastern Mfg. Co. 1st Pfd.	55	...
Great Northern Paper, Com.	75	78
Hammermill Paper, new 6% Pfd.	100	...
Hinde & Dauch, Com.	125	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	150	...
Mengel Co., Pfd.	102	104
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	195	...
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	80	...
Richardson Co., Com.	170	...
Rubberoid	95	101
Sabin Robbins Paper Co., 8% Pfd.	105	110
St. Croix Paper	155	...
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper Company	55	57
West Virginia Pulp and Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	105	None Off.

Visit Champion Coated Paper by Airplane

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 2, 1928.—The airplane is figuring more conspicuously each month in modern industry. This fact was tellingly demonstrated in the Miami Valley last week the Champion Coated Paper Company of Hamilton chartered a Ford tri-motor plane at the Watson airport in Cincinnati to transport to Hamilton a group of six New York men to make a tour of inspection of the Hamilton Mills.

Herbert Randall of the Champion mills and Mrs. Randall journeyed to Cincinnati from Hamilton early in the day, chartered the plane and flew to this city where they met the company's guests. After a brief stay in Dayton the entire party took off at the Dayton field for Hamilton, the trip having been made in double-quick time and landed at Ford field. The plane then proceeded back to its hangar and took as passenger J. R. Chambers, in charge of the Champion Coated Paper Company's stock department.

The New Yorkers who thus had a novel visit to the Miami Valley to inspect the Champion mills and who were guests of the company, were George Murphy, Carl Stuart, G. Hoffman, J. P. Osborne and Mr. Ogilvie.

After inspecting the plant at Hamilton the Easterners enjoyed a dinner at the Hotel Sinton at Cincinnati but this followed a two-day visit in Hamilton during which time the visitors witnessed all operations of making coated paper. They were escorted through the large plant, which at present is running on a good grist of orders, and expressed their delight to Mr. Randall and other officials of the company for the opportunity of witnessing at first hand the modus operandi.

Boston Paper Market Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 1, 1928.—The wholesale paper market continues active and well sustained by a good volume of orders. Most concerns report a lively demand, although some say that business has not been better than fair with them for the week. The political campaigns have contributed in no small extent to the demand for fine paper. With some houses an unusual call for fine paper persists, so that members of these houses are most cheerful. The Whiting Paper Co. has recently installed two new machines, indicating good business. In kraft the demand is also understood to be generally satisfactory.

The fall and winter demand for boxes has resulted in considerable activity in box board. Among other factors the greater volume of orders for candy boxes has brought about sales of many boxes. With the recent advance in waste paper the trade has been expecting a rise in the price of board, as previously intimated in these columns, but the change has not taken place yet, according to statements in the trade. Filled news board still continues at $47.50 and chip board at $45.

Compared with the finished product, paper stock is not in such a firm position and the tendency at present is downward. No. 1 mixed paper is down to 60 cents a hundred pounds, f.o.b. Boston, compared with a previous figure of 65 cents. Dark cottons are still on the downward path, with a minimum quotation of 1.60. There is a smaller volume of shoe rags being bought and indications are that prices in this commodity will not advance.

BROWN COMPANY'S ALPHA GRADES

of Purified Cellulose Fibre representing some of the valuable results of our many years of research in cellulose chemistry.

SUPER ALPHA

for strength in Tear, Fold and Mullen. Super Alpha equals the higher grades of rags in the manufacture of fine papers.

EASY-BEATING ALPHA

This is a grade developed for mills of limited beating capacity. While not giving results equal to Super Alpha, it produces wonderful paper on short beating.

REGULAR ALPHA

This is a grade midway between Super and Easy-Beating.

Use ALPHA for Quality

BROWN Company — FOUNDED 1852 — Portland, Maine

The Babcock & Wilcox Co.

85 LIBERTY STREET, NEW YORK

ESTABLISHED 1868

THE BABCOCK & WILCOX COMPANY — STEAM

Water Tube Boilers Steam Superheaters
Economizers Air Preheaters
Chain Grate Stokers Oil Burners
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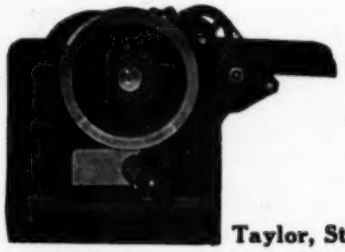
ATLANTA	Candler Building
BOSTON	80 Federal Street
CHICAGO	Marquette Building
CINCINNATI	Traction Building
CLEVELAND	Guardian Building
DALLAS, TEXAS	Magnolia Building
DENVER	444 Seventeenth Street
DETROIT	Ford Building
HOUSTON, TEXAS	Electric Building
LOS ANGELES	Central Building
NEW ORLEANS	344 Camp Street
PHILADELPHIA	Packard Building
PHOENIX, ARIZ.	Heard Building
PITTSBURGH	Farmers Deposit Bank Building
PORTLAND, ORE.	Failing Building
SALT LAKE CITY	Kearns Building
SAN FRANCISCO	Sheldon Building
SEATTLE	L. C. Smith Building
HONOLULU, T. H.	Castle & Cooke Building
HAVANA, CUBA	Calle de Aguiar 104
SAN JUAN, P. R.	Recinto Sur 51



TAYLOR, STILES & COMPANY — GIANT — REGISTERED — RIEGELSVILLE, N.J.U.S.A.

RAG CUTTERS

Taylor, Stiles & Company
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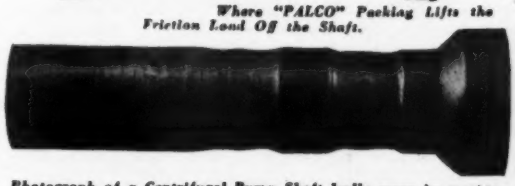
All Kellogg Forge and Hammer Welded Products are insurable

Where "PALCO" Packing Lifts the Friction Load Off the Shaft.



Photograph of a Centrifugal Pump Shaft badly worn by working against flax packing which did not carry sufficient lubricant to prevent friction.

STYLE C PACKING

For pumps handling caustic soda and similar chemicals. Its lubricant can be relied upon to resist the cutting action of these chemicals, and to keep the pump shaft so perfectly lubricated as to avoid friction. To prove our claims let us send you a free working sample to test under your own conditions.

GREENE, TWEED & CO.
Sole Manufacturers
109 Duane St., New York

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 3, 1928.

Conditions in the local paper market continue to improve and the various grades of paper are mostly in persistent request. Inquiries for future business are quite numerous and the immediate outlook is decidedly promising. Sales forces of the leading paper organizations are in the midst of a strenuous autumn campaign which promises to be highly successful.

Demand for news print is gradually improving and the position of the market is sounder than of late. Production at North American mills is still curtailed and consequently there are no undue accumulations of stocks. While quotations are generally holding to schedule, generous concessions are still being made on contracts signed for the forthcoming year.

Production of paper board is proceeding in excellent volume and demand for the various grades is well up to average for the season. Prices rule steady to firm. Fine papers are in somewhat better request and quotations are holding to schedule. The coarse paper market is exhibiting a strong undertone. Southern kraft is in a particularly strong position and some manufacturers report orders on hand which will keep them busy until the middle of November.

Mechanical Pulp

The ground wood market remains rather lifeless and demand for both imported and domestic grades of mechanical pulp is light. Offerings of spot supplies are sufficient to meet current requirements. Shipments against contract are proceeding at a normal pace. Prices are generally holding to previous levels and shading is infrequent.

Chemical Pulp

Mill interest in both imported and domestic chemical pulp is growing, and many of the leading manufacturers are reported to be purchasing steadily for future requirements. It is interesting to note that approximately 26 per cent of the Swedish production for the forthcoming year is already sold. Prices rule steady to firm and there is not much talk of concessions around.

Old Rope and Bagging

No radical changes were reported in the old rope market. Demand for both imported and domestic old rope is excellent and with supplies rather limited prices remain firm. The bagging market continues dull. Demand for scrap bagging is slow while gunny bagging is only moderately active. Burlap is in fairly steady request. Prices remain unchanged, in most instances.

Rags

With many of the paper mills running closer to capacity, the demand for foreign and domestic rags is improving. Imported roofing grades are moving in satisfactory volume. Domestic cotton cuttings are in steady request and mixed rags are fairly active. Prices are generally unchanged, despite keen competition for desirable business.

Waste Paper

The paper stock market is experiencing a good buying movement at present and prices rule firm. Soft white shavings are firmer and are now quoted at from 2.40 to 2.55. Container manilas have advanced to from .72½ to .77½. Strictly folded news is stronger and is now offered at from .75 to .80. Old kraft machine compressed bales are selling at from 1.85 to 1.95.

Twine

Demand for wrapping paper is reported to be steadily increasing, with the near approach of the holiday season, and consequently the outlook for the twine industry is more promising than for some time. Supplies are beginning to move into consumption more rapidly and inquiries are becoming more numerous. Prices remain steady and unchanged.

Watermarked Paper Monopoly Alleged

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 1, 1928.—The Department of Justice today filed petitions in the United States court for the Northern District of New York, at Albany, against eight paper mills and individuals, charging them individually and collectively with violating the Sherman anti-trust act in seeking to create a monopoly in the sale of union-made watermarked paper.

The defendants named in the action, according to an announcement from the Department of Justice tonight, are: The Alden Paper Company, Unity Paper Mills, Inc., Hopper Paper Company, American Writing Paper Company, Edward S. Alden, William R. Smith, Frank P. Barry and Matthew Burns.

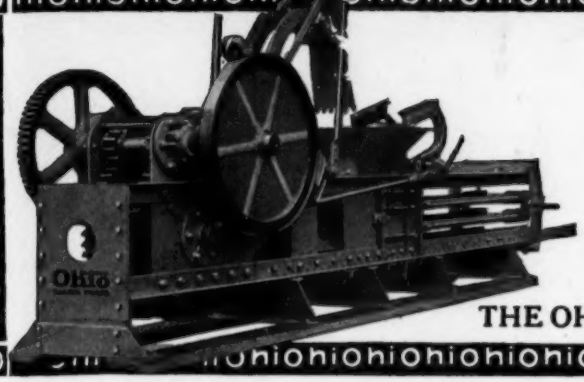
"The Government proposes by this action to put an end to the union-made watermarked paper monopoly," the Department of Justice declared in its announcement, "which is alleged to have been created as a result of a conspiracy between William R. Smith, Frank P. Barry and Matthew Burns, officers of the International Brotherhood of Paper Makers, an organization having offices at Albany, N. Y., and Edward S. Alden, a paper broker, of Holyoke, Mass." The department's statement added:

"The International Brotherhood of Paper Makers has a distinctive watermark bearing the name and symbol of the brotherhood. When impressed on the paper at time of manufacture by a mechanical device known as a dandy roll, the watermark cannot be obliterated except by destruction of the paper.

"The dandy rolls used for this purpose are owned by the brotherhood, and paper makers, including American Writing Paper Co., of Holyoke, Mass., Unity Paper Mills, of Potsdam, N. Y., and Hopper Paper Co., of Taylorville, Ill., have entered into an arrangement whereby Alden Paper Co., owned by Edward S. Alden, of Holyoke, Mass., is designated as exclusive distributor for all union made paper. Alden receives a commission on the sale of all union made paper, although in many instances the sales are negotiated and concluded without any effort on his part. And by the arrangement consumers are compelled to pay the price of watermarking, though many of them prefer to buy union made paper without the watermark."

Joseph F. Pynchon Passes On

Joseph F. Pynchon, of Springfield, Mass., who had represented J. Andersen & Co., importers of pulp, of 21 East 40th street, New York, in New England for approximately thirty years, died suddenly at his summer home in Blandford, Mass., Saturday morning, September 8. Mr. Pynchon was a man of irreproachable character and will be greatly missed by the many friends he had made in the paper industry.



FAMOUS
Ohio
BALING PRESS
Made in Three Sizes

There is no stopping, no lifting out of the plunger either for feeding in material, for tying up the bale, or removing it. All these things are necessary in the vertical press. They delay the operation, make more labor and cut down the output.

THE OHIO CULTIVATOR CO., Bellevue, Ohio

West Virginia Pulp and Paper Company

Manufacturers of
SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

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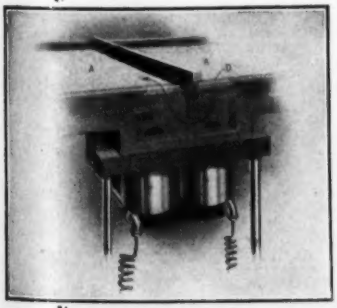
PRICE & PIERCE, Ltd,.

17 EAST 42ND ST.
NEW YORK



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Are you making paper for insulating purposes? If so, our *Type B Iron Extractors* are a necessary part of your equipment.

Hundreds of these extractors are in use in the United States, Canada, and Europe. Write us for Bulletins and full data.

THE ROLAND T. OAKES CO.

Electrical Specialists — Holyoke, Mass. — *Established 1885*

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 3, 1928.

BLANC FIXE.—The blanc fixe market is practically unchanged. Both the pulp and the powder are in fairly good request. Prices remain steady. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3½ cents to 3⅝ cents a pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market are fairly satisfactory. Demand for this product is moderately active and prices are generally holding to schedule without difficulty. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—The casein market has eased off somewhat. Most of the business transacted recently has been along routine lines. Domestic casein is now quoted at from 15¾ cents to 17¼ cents per pound. Imported casein is selling at around 17 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Contract withdrawals of caustic soda continue to move in good volume. Prices are generally holding to former levels. Solid caustic soda is quoted at from $2.90 to $2.95 per 100 pounds. The flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Steadiness prevails in the china clay market. Supplies are moving into consumption in a satisfactory manner. Imported china clay is offered at from $15 to $25 per ton, ship side. Domestic paper making clay is still selling at from $8 to $9 per ton, at mine, and pulverized at from $10 to $12 per ton.

CHLORINE.—Supplies of chlorine are moving into consumption at a steady pace. Production is large enough to take care of current needs. Chlorine is still quoted at 3½ cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¾ cents to 4 cents a pound.

ROSIN.—Demand for rosin was rather light during the past week. At the naval stores, the grades of gum rosin used in the paper mills are now offered at from $9.35 to $9.40 per 280 pounds, ex dock, in barrels. Wood rosin has advanced to from $7.25 to $8.05 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Business in the salt cake market is fairly brisk. Shipments against contract are proceeding in excellent volume. Prices are holding to schedule and shading is infrequent. Salt Cake is quoted at from $15 to $17 a ton, in bulk, at works. Chrome salt cake is selling at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Consumption of soda ash is being maintained in a satisfactory manner, and the market is exhibiting a strong tendency. Prices remain unchanged, in most instances. Contract quotations on soda ash, in car lots, per 100 pounds, according to grade, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—The position of the starch market is sound. Large shipments against contract have been made by the refiners. Production is proceeding in a satisfactory manner. Prices generally remain unchanged. Special paper making starch is selling at $4.07 per 100 pounds, in bags, and at $4.24, in barrels.

SULPHATE OF ALUMINA.—The undertone of the sulphate of alumina market is firm. Demand for this product is persistent and prices are holding to schedule. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.55 per 100 pounds. The iron free is selling at from $1.90 to $2.05 per 100 pounds.

SULPHUR.—Demand for sulphur was well up to average. Shipments against contract are going forward in excellent volume. Prices are holding to the schedule which has prevailed for some time. Sulphur is quoted at from $18 to $19 a ton, in bulk, at mine, on contract orders. The spot quotation is $20 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Supplies continue to move into consumption regularly. Domestic talc is still quoted at from $16 to $18 a ton, in bulk, at eastern mines. Imported talc is selling at from $18 to $20 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.25	@ 4.50
Southern	4.00	@ 4.25
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	42.50	@45.00
Straw	52.50	@55.00
Chip	40.00	@42.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip.	50.00	@52.50
Wood Pulp	80.00	@85.00
Container	57.50	@60.00
85 Test Jute Liner.	55.00	@57.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.65	@ 4.40
Easy Bleaching	2.80	@ 2.90
No. 1 strong unbleached	2.50	@ 2.70
Mitscherlich unbleached	2.65	@ 3.25
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.50	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.75	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.70
Kraft (Domestic)	2.70	@ 3.30
Soda Bleached	3.15	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 1.90
Lindsay Garments	1.85	@ 1.90
Dark Cottons	1.65	@ 1.75
Old Shopperies	1.55	@ 1.65
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.35	@ 3.65
Domestic	3.25	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.40	@ 2.55
White envelope cuttings	3.25	@ 3.50
Flat Stock—		
Stitchless	1.60	@ 1.70
Overissue Mag.	1.60	@ 1.70
Solid Flat Book	1.45	@ 1.50
Crumpled No. 1	1.05	@ 1.15
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.60	@ 1.75
Manilas—		
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.80	@ .85
Container	.72½	@ .77½
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.85	@ 1.95 (Made)
News—		
No. 1 White News	1.75	@ 1.80
Strictly Overissue	.85	@ .95
Strictly Folded	.75	@ .80
No. 1 Mixed Paper	.60	@ .65
Common Paper	.35	@ .40

CLAY
OF ABSOLUTE UNIFORMITY

American Made for American Trade

Two Leading American Clays

H. T. BRAND

For Coating and Filling

Now used in many of largest paper mills

KLONDYKE BRAND
Filler Clay

43 years' experience in American washed clays are back of these products.

Ask for Samples

EDGAR BROS. CO.
50 Church Street *New York*

The

ST. REGIS PAPER COMPANY

Daily Capacity
525 TONS

Newsprint
Catalog and Directory Papers
Fibre Wrapping Papers
Packers Oiled Manila
Specialties

General Sales Office

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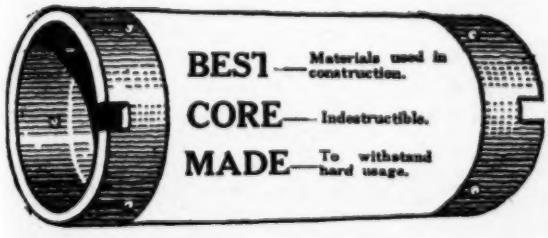
SHIPPING INSURANCE

The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

SHIPPING INSURANCE



Your two sources of supply are

Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

SINCE 1887

Biggs Globe and Cylinder Rotary Bleaching Boilers have become known in every part of the world as standard paper-plant equipment. Repeated installations indicate very positively the complete satisfaction of our old customers.

THE BIGGS BOILER WORKS CO.
AKRON, 20, OHIO

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¼	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.02¾	@	.04¼
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	2.90	@	3.00
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.25	@	1.35
Blanks	1.70	@	1.80
Kraffs	1.90	@	2.00
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (overissue)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manil Sul., No. 1	.04½	@	.06
Manil No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05½
No. 1 Kraft	.06	@	.06½
Common Rogus	.02¾	@	—
Straw Board	52.50	@	75.00
News Board	45.00	@	—
Chip Board	42.50	@	—
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	80.00		
No. 2, per ton	75.00		
Carload lots	60.00	@	70.00
Tarred Felts—			
Regular	52.00	@	55.00
Slaters (per roll)	84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07¾	@	.08
Black Sil. ia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Washable, No. 2	.03	@	.03½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07¼	@	.08
New Blue	—	@	.04
New Black Soft	.05	@	.05¼
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.65	@	1.80
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.15	@	1.25
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.50	@	2.60
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.60	@	1.65
Writing Paper	1.50	@	1.60
No. 1 Books, heavy	1.50	@	1.60
No. 2 Books, light	1.20	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common Paper	.55	@	.60
No. 1 Mixed Paper	.55	@	.60
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.85	@	.90
Old Newspaper	.60	@	.65

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2—			
Repacked	.02¼	@	.02¾
No. 2	1.40	@	1.50
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.25	@	—
No. 5A	.85	@	.90
B	.80	@	.90
C	.70	@	.80
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.70	@	1.85

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04	@	.04¾
Common Bogus	.02	@	.02¾
Delivered New England points			
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp Lined Board	52.50	@	57.50
Single White, Patent Coated Newsboard Bender	70.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.45	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.20	@	1.25
White Blank News	1.55	@	1.65
Old Kraft	2.00	@	2.10
Print Manila	.80	@	.90
No. 1 Mixed Paper	—	@	.60
Overissue News	.70	@	.75
Old Newspapers	.62½	@	.65
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.60
Manila Rope—			
Foreign	3.25	@	3.50
Domestic	3.25	@	3.50
Mixed Strings	.90	@	1.00
Scrap Burlaps	1.45	@	1.50
Scrap Sisal	1.25	@	1.50
Scrap Sisal for shredding	1.50	@	1.65
Wool Tares, heavy	—	@	1.50
New Burlap Cutting	1.90	@	2.00

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09	@	.10
Silesias, No. 1	.06	@	.06½
New Unbleached	.09½	@	.10
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06	@	.06½
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08	@	.08¾

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	—	@	2.50
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.75	@	1.85
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.50	@	—
New Checks & Blues	4.50	@	4.65
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk, News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05½	@	—

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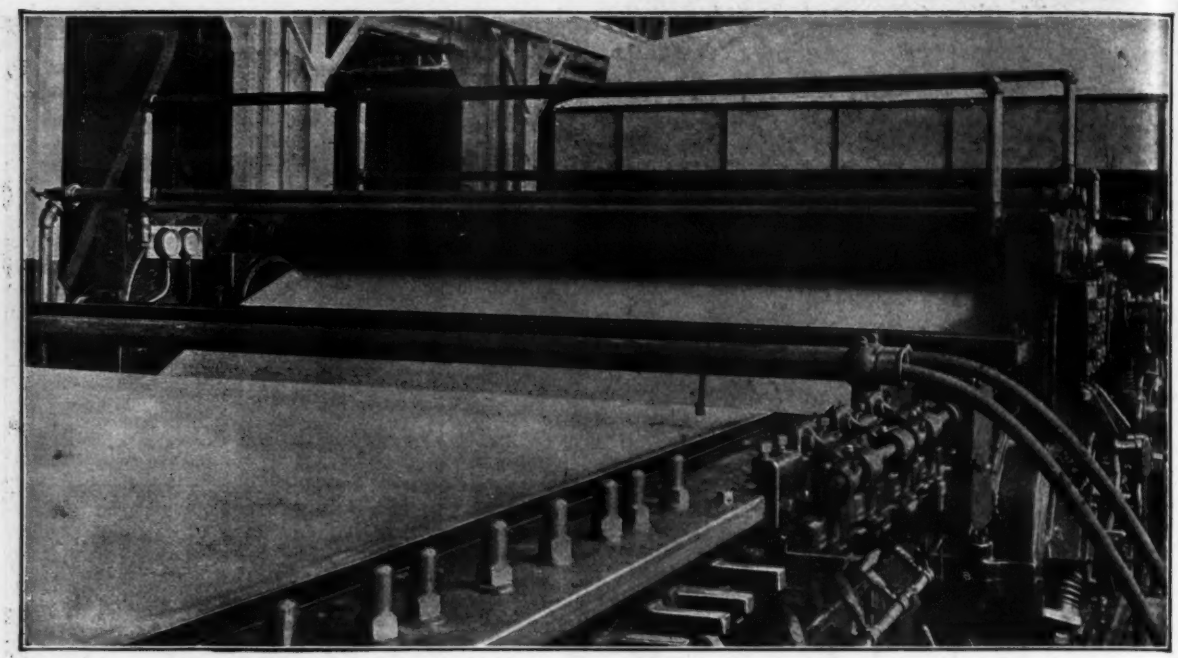

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